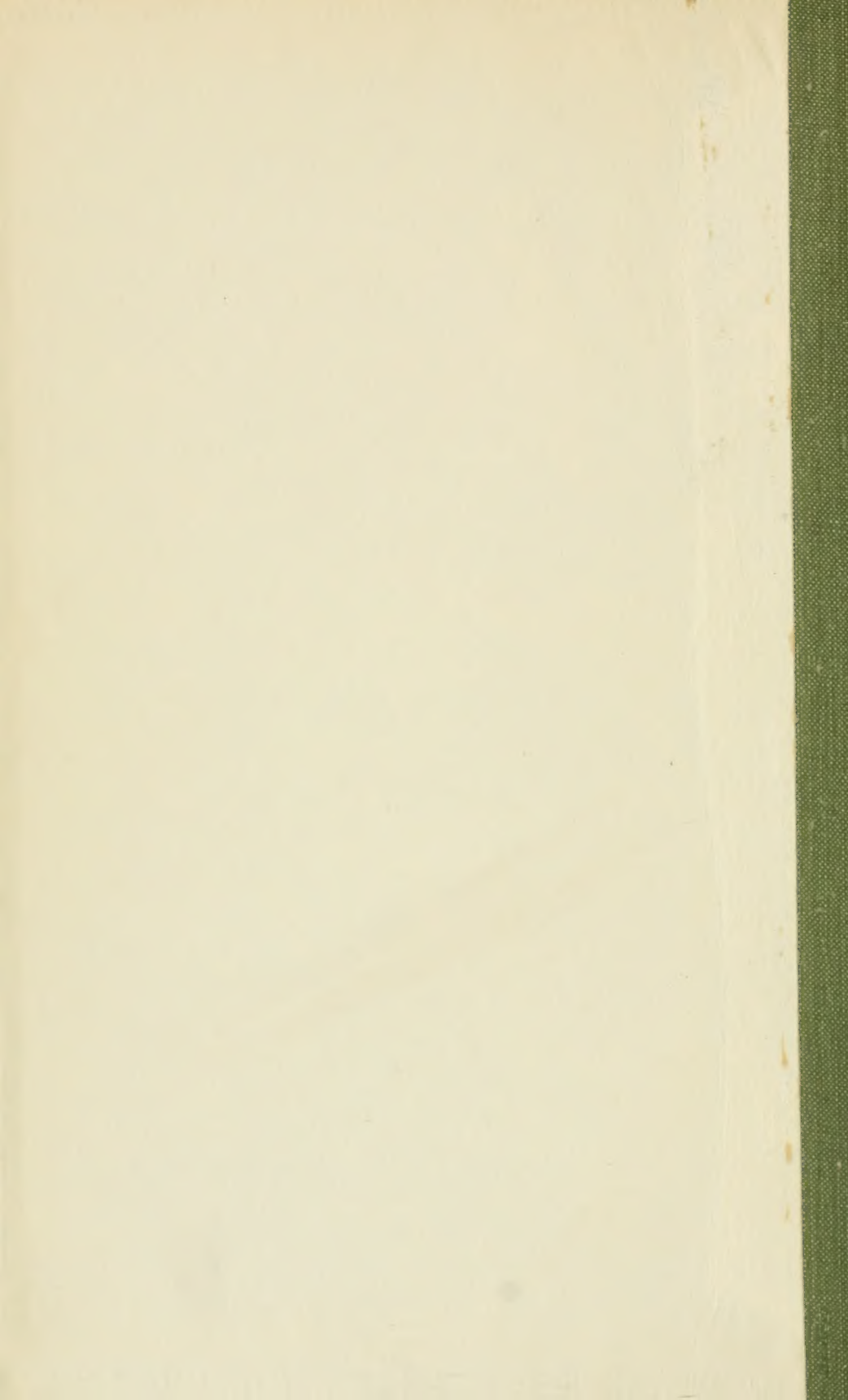


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# THE OPHTHALMIC RECORD

A Monthly Review of the Progress  
of Ophthalmology

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# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

Vol. XXI

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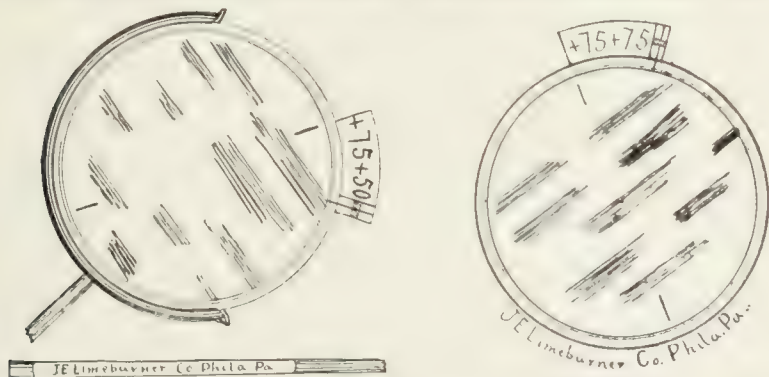
## ORIGINAL ARTICLES.

### SIX DIOPTER MENISCUS TRIAL LENSES, INCLUDING CYLINDERS, SPHERES, PRISMS, TINTS, NEUTRAL - KRYPTOKS, TORO - SPHERO-CYLINDERS, A NEW RING AND A CROSS-CYLINDER DEVICE FOR HOLDING THEM.

JOHN NEELY RHODES, M. D., PHILADELPHIA.

Illustrated

In using the sphero-cylinder test lenses, described by me in the September number of this Journal, I noticed that the method of scratching the two numbers on the lens was inadequate; con-



sequently, I had constructed the ring as seen in fig. 1. This ring, as is apparent, has a curved number piece soldered to it and to the edge of the butt of the former handle. This number piece has the numbers clearly stamped on both sides. Its dimensions are such that it makes a good handle, and while it is especially suited for the sphero-cylinder lens, it doubtless would make a better handle for the cylinders in the old cases than the long ones now attached to them. The axis of the sphero-cylinder lens should be placed in line with the left end of the handle (as

seen in the cut. The edge of handle is to act as an index for traveling over the scale of the trial ring.

This ring is especially adapted for the revolving trial frame in which it can be completely revolved without striking the patient's nose or any part of the frame. It has the same advantages that the span-up ring with the broad circular flange has, without any of its drawbacks, such as the difficulty of replacing a broken lens, the extra weight, small size, and the uncertainty of line of axis. It can easily be seen by the cut that this ring is put together with the ordinary trial lens screw.

I have been so well pleased with the sphero-cylinder lenses that I am having the J. E. Limeburner Company make me a complete set of *Meniscus Lenses*, some of which I am using as fast as they are made. The set will include the list as seen in the heading of this article, for which I have designed a square revolving case.

This case will contain four lens trays. The lenses will be inserted in the tray at an angle of  $30^{\circ}$ . The trays will stand upright on their edges and will occupy a space only one inch and a half wide on the bottom of the case, consequently, the four trays and case will take up no more room than the 250 lens case now in use, and yet it may contain a thousand lenses.

I am using some of the toro-sphero-cylinder lenses, and they certainly are ideal. It is apparent, of course, that the trial frame can be placed much closer to the face with a curved glass than with a flat one. A very important feature is the absence of reflection from behind. With this lens and a good trial frame, it is possible to place the test lens just where the prescribed glass should be worn.

The six diopter neutral-meniscus-kryptok lens placed in front of a toro sphero-cylinder correction makes presbyopic testing as easy and as exact as twice two are four.

The plano-kryptok for the flat compound trial lens, or the neutro-meniscus-kryptok for the curved compound lens, when placed in the trial frame, whether the bifocal addition is to be cemented on, ground on, or fused in, *is the best trial combination for presbyopes that can be assembled*. First, it is best because every glass is in perfect position. Second, it is best because it is easier to convince the patient that he should wear bifocals, and fused bifocals at that. A patient with his correct measurement in front of him may look up or down; may walk

around and learn how to step over obstacles; can look in a mirror and see that the "horrid" pieces are missing; may look out of the window and see a flagpole a mile away, or down to a book and read the smallest type at the reading distance.

I advocate that the kryptok trial lenses be made from plus one to plus four inclusive, with a quarter diopter change in each.

I have ordered the six diopter meniscus spheres and cylinders for several reasons. Perhaps the most important is to have them for neutralizing toric lenses. Just a little less important is their use in testing eyes which need plane cylinders or spheres; and their least importance is their use in transposition.

I have especially ordered tinted meniscus trial lenses in the several prescribable colors, inasmuch as they can more readily be placed in front of the complete correction, thereby enabling the patient to judge of their feasibility. The patient with the color in front of his correction may be directed to look out of the window for color judgment, or to look in the mirror to decide on its cosmetic effect, or if presbyopia, to glance at a book in order to be able to judge of his ability to read through them, and in every way can be better shown how the color will act when the correction is ground permanently in the tint.

It will be necessary for prisms to have the six diopter curves in order to get them in the frame in front of the correction for muscle testing.

I have been criticised for having so many lenses and their equivalents in my list of spherocylinders published in the September Record. In reply I have to say that every lens named in the list is carried by the thousand in the optician's stock, and are being constantly ordered by some oculists. Every such prescription must be neutralized by someone, and the lens measure notwithstanding, there is nothing better to neutralize a glass than its exact opposite. I, myself, always order the lowest sphere possible, and, of course, never order a spherocylinder which can be transposed to a plane cylinder.

The cross cylinders that occur in the list come in very handy where different strengths are wanted, and they are often wanted in higher numbers. Becoming aware of the foregoing fact, I have had made the instrument as seen in fig. 2. This instrument is for holding the cross-cylinders that occur in my list. Unfortunately, the artist's markings on the handle do not indicate a



cross cylinder. I have also had made a similar instrument with a double half cell (though not figured here), in which a cross-cylinder can be made up from the lenses in the old fashioned case.

I wish to call especial attention to a new way of using the cross-cylinder rendered possible by the compound trial lens, and the meniscus cross-cylinder.

Let the operator place the shadow-selected sphero-cylinder in the back cell, and then take a meniscus cross-cylinder from the case and place it in the revolving cell of the trial frame, and while revolving it ninety degrees say: "Would you rather have the glass in the first position or in the second?" and change the sphero-cylinder accordingly, and so continue to change as long as there is any preference. While this is a rapid method, I do not consider it as delicate a test as by the old way.

In conclusion, I wish to state that I am fully aware of the fact that a complete set of meniscus trial lenses running from 0.12.D. to 4.00.D. will number over a thousand. I realize, too, that they aggregate four times as many lenses as are now in use. I am, however, thoroughly convinced that far superior work can be done with this form of trial lens; and superior work, as much as it means to the operator, means more to the *patient*. Pains-taking is nothing; expensive tools are nothing if they are justified by results. Let our *best* efforts be focused on the eye.

## A NEW METHOD OF MAKING FILM PREPARATIONS TO DEMONSTRATE THE PRESENCE OF THE GONOCOCCUS.

(From the Pathological Laboratory of the Montreal General Hospital.)

By HANFORD MCKEE, B. A. M. D.

MONTREAL.

While Ophthalmia Neonatorum may be caused by various micro-organisms, the gonococcus still plays the important role here. The demonstration of this diplo-coccus is at times difficult, and consequently the bacteriological report is often a negative one, in cases where the course of the disease leaves no doubt as to its presence. One is struck with the large percentage of negative cases in all statistics on ophthalmia neonatorum. In Groenouw's two series, so often quoted, the positive results were

only thirty-five and forty per cent. I have long thought that our methods must be at fault.

Some months ago, while searching for the trachoma bodies in the male urethra, I examined a patient who was thought about cured of his gonorrhoea. When a film was prepared so that the epithelial cells could be examined, masses of organisms identical in morphology with the gonococcus were found within

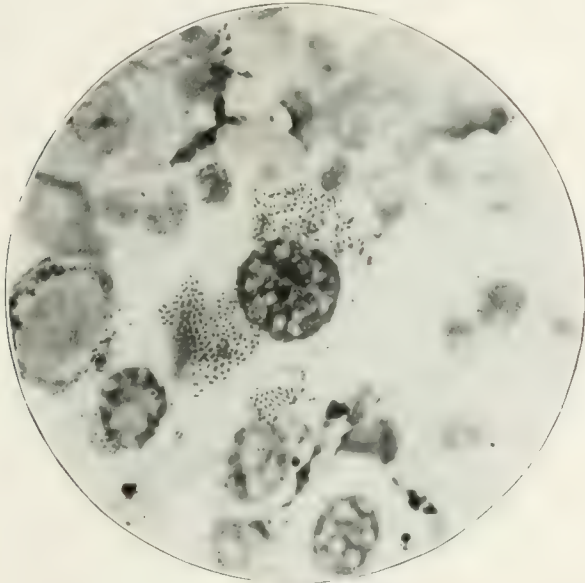


Fig. 1

them. Many of the cells had the cytoplasm completely filled. Shortly after this two cases of ophthalmia neonatorum were brought to the clinic. Examination of the pus in the usual way gave negative results. In one cell only, there were inclusions, which from the clinical appearance of the conjunctiva I thought were gonococci. Films were then prepared after the method used in trachoma cases, so that the epithelial cells could be examined. With an ear curette the palpebral conjunctiva was gently stroked, and the material spread carefully over a glass slide. It was dried in the air, and fixed in eighty per cent alcohol for ten minutes and then stained with Giemsa solution, one in twenty parts of distilled water, for twenty minutes. In each of these cases where by examining the pus the results were negative, the epithelial cells were found crowded

with biscuit-shaped diplo cocci. Haemoglobin agar, inoculated with discharge containing epithelial cells, gave a profuse growth of the gonococcus.

The usefulness of this method of preparation has been verified in pneumococcus and diplobacillary conjunctivitis, although in the latter it is extremely rare for the old method to give negative results. Giemsa's new method of staining will also be found useful in these cases. The prepared slide is dried

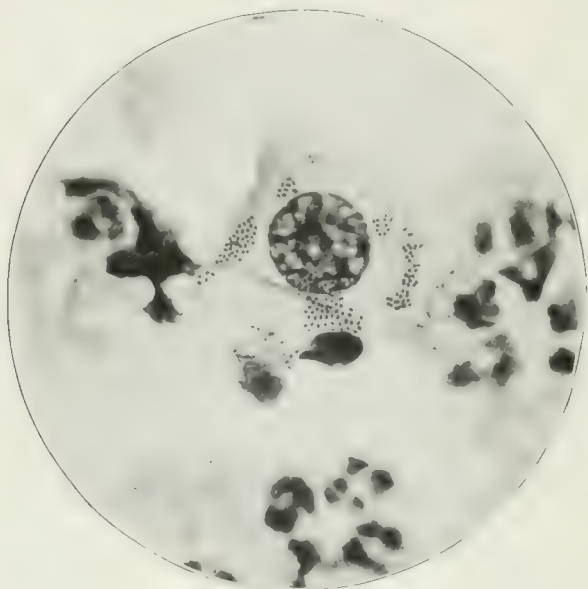


Fig. 2

in the air and put in a petri dish and covered with staining fluid, which consists of equal parts of Giemsa stain and pure methyl alcohol, for thirty seconds. Enough distilled water is now poured in to cover the specimen, ten to fifteen c.c., which is agitated until a homogeneous mixture is obtained. After three minutes the specimen is removed. I feel sure that this method of preparing films, showing the epithelial cells will demonstrate the presence of the gonococcus in many cases, which by the old method, would have been negative.

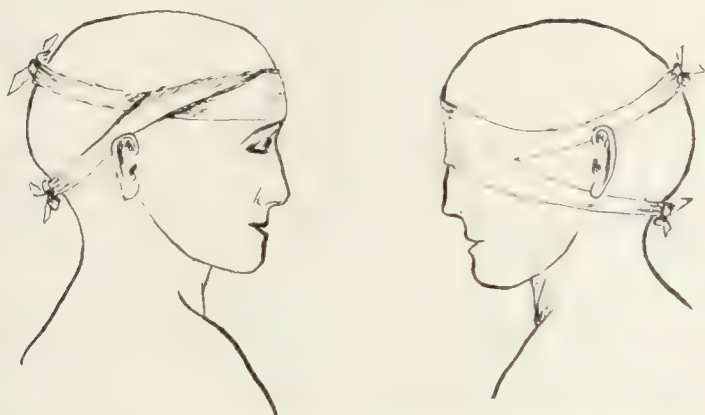
The accompanying micro-photographs are from the two cases cited in the text and show numerous gonococci in the epithelial cells.

## A CONVENIENT EYE BANDAGE.

Z. C. LAYSON, M. D., HINTON, WEST VIRGINIA.

In corneal ulcers and other conditions in which an eye must be inspected and treated several times daily, it is desirable to have a bandage that will keep the eye snugly closed under a pad of dressing and yet permit of being easily taken off and put on again.

Such a bandage can be readily made from a piece of two and a half or three-inch gauze roller bandage. Cut a strip suf-



ficiently long to tie around the patient's head and split this at each end, leaving about six or seven inches unsplit. Two tails are thus made on each end of strip. The two which are to be applied on the side of the closed eye should be slightly longer than on the side of the eye which is to be left open.

To apply the bandage, place the unsplit part over affected eye and pass the two longer tails one above and one below the ear. Carry the other end of the bandage over the forehead above the unaffected eye to a point above the temple. At this point have the upper tail to cross over the lower one and then pass back under the occipital protuberance to be tied securely with the lower tail of the opposite side. The two remaining tails are then tied at a point well above the occipital protuberance.

The cross prevents the bandage slipping up too far on the side of the eye left open.

## AN AID TO THE LOCALIZATION OF FOREIGN BODIES IN THE EYE.

H. GIFFORD, M. D., OMAHA, NEB.

In the *Ophthalmoscope* for August, 1911, Holth describes a method of localizing foreign bodies in the eye and orbit, which is practically the same as that which I have used for several years, and which was mentioned in an article by Dr. W. H. Mick, read at the meeting of the Nebraska State Medical Association, May 3rd, 1911, and published in the *Western Medical Review*, August, 1911, p. 401.

Holth uses a pair of lead buttons, which are fastened with a stitch at the upper and lower margins respectively of the cornea. These give shadows, which have a definite relation to the eye-ball, no matter what position the latter may assume, when the radiograph is taken. In Holth's article, he refers to other communications of his on X-ray localizations, but it is not clear whether or not his buttons have been previously described, and as the articles, which he refers to, are in Scandinavian and radiographic journals, to which I have no access, I am uncertain whether the printed description of his plan appeared before Dr. Mick's article. The question of priority is of small importance for the advantages of the plan are so obvious that the idea must have occurred to many others, and I have no doubt that a number of men have been putting it into practice independently. At any rate, I can heartily endorse Holth's plea for the general adoption of the idea, but it is not necessary to have specially prepared buttons with thread holes. When I first began to practice the method, 8 or 10 years ago, my first idea was to half split small shot and pinch these on to a fold of conjunctiva, but my colleague, Dr. Patton, to whom I first suggested this, not having the shot at hand, got into the practice of nipping off small bits of brass or silver wire, and tucking one of them into a conjunctival pocket at the upper and lower corneal margins, and this has proved so satisfactory that although I have at times yearned for something more artistic, and have even had some small silver rings made to pinch on with a forceps, like a hog-ringer, we have gone on using bits of wire or of brass pins. The great advantage of the method of fixed limbus localizers, as opposed to those methods, in which the localizers are outside of



the eye, or even on the outside of the lids, has been shown in some of our skiagraphs, in which the eye-ball has evidently moved after the circuit has been closed, so that if Sweet's localizers alone had been used, a quite erroneous idea of the position of the foreign body would have been obtained, while with the limbus localizers, its real position was easily ascertained.

The metal ring, which Fox applies to the corneal margin, is, of course, based on the same principle, and may be equally or more effective, but it involves getting a special appliance while pins and nippers are generally at hand in every office.

### ON THE MANAGEMENT OF NON-CLOSURE OF CATARACT-OPERATION WOUNDS.

BY H. GIFFORD, M. D., OMAHA, NEB.

Non-closure of the wound after cataract-expression, has been the subject of a number of communications, but among the remedies suggested I have seen no mention of the very effective measure, which I learned from my former chief Professor Horner of Zürich. When making rounds with him in 1885, we came to a cataract patient, whose wound was not closed. "Verband weg!" was his terse remark; and sure enough, without any bandage, the wound healed at once. It was some years later that I had my first case of the kind, and I passed several anxious days before thinking of my Zürich experience. Then I applied the same principle, leaving the lids untouched by any dressing, but covering the eye with a pasteboard shield to prevent injury from external violence, and the wound closed promptly. Since then, out of approximately 750 expressions and 50 extractions of senile cataract, I have had somewhere from 25 to 50 cases, in which the wound was not closed by the fourth or fifth day. All of these were treated by the same method; a moist dressing being retained on the unoperated eye to help keep it still; while the lids of the operated eye were left perfectly unrestrained and free from the slightest pressure, but protected from accidental pressure by the arch of a pasteboard shield. In all cases the wound has closed permanently in one to three days, after leaving off the cotton. I have never found it necessary to resort to reopening and scraping the edges of the wound; searching for included capsule-fragments;

sliding over a conjunctival flap, cauterization of the wound, nor any other of the measures, which have been resorted to in more obstinate cases of this sort. Undoubtedly in nearly all of my cases, and perhaps all of them, the wound would eventually have closed without leaving off the dressing, but the rapidity with which they closed without it has given me a very decided impression of the efficacy of the measure. I do not remember ever discussing the subject with Professor Horner, but undoubtedly his idea was that, no matter how delicately the pressure of a bandage might be adjusted, it would be more likely to interfere with the co-aptation of the wound lips than the pressure of the lids alone. The success, with which this measure seems to be attended, unquestionably argues strongly in favor of the "open" treatment of cataract wounds as a routine plan, but the cases are not strictly parallel, since in the one, we are dealing with a wound, fresh and open to infection throughout its whole extent, while in the other, the wound edges are probably all sealed except at one insignificant point.

**Conclusion:** In cases of non-closure of cataract wounds, a good plan is to leave the lid free under a shield. Perhaps it would be better still to hold the lids quiet with a narrow strip of plaster or a single skin-stitch.

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The numerous friends, pupils and other admirers of Dr. Henri Dor, the well-known honorary professor of ophthalmology in the medical faculty of Berne, among them Sir Henry Swanzy, De Lapersonne, Leber, Rollet, Angelucci, Fuchs, Jessop, Landolt and Santos Fernandez, propose to celebrate his seventy-sixth birthday by presenting him with a portrait of himself in the form of a bas-relief. All who desire to join in this tribute to Professor Dor may do so by sending their subscription (P. O. O. for 20 francs) to Monsieur le docteur Dubreuil, 53 rue de la Charité, Lyon, France. Subscribers will receive a copy of the presentation portrait in bronze.

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Prof. Salzmann, well known to American students in Vienna, has been made professor of ophthalmology in Graz. He was formerly an assistant in Fuchs' clinic and gave courses in English in ocular pathology and diagnosis.

COMBINED MEETING OF THE SECTIONS ON OTOL-  
OGY AND LARYNGOLOGY AND ON OPHTHAL-  
MOLOGY OF THE COLLEGE OF PHYSI-  
CIANS OF PHILADELPHIA.

WEDNESDAY EVENING, NOVEMBER 15, 1911.

DR. GEORGE E. DE SCHWEINITZ, PRESIDENT OF THE COLLEGE OF  
PHYSICIANS, IN THE CHAIR.

**A Further Contribution to the Study of Diseases of the Accessory Sinuses in Relation to Diseases of the Eye, and the Surgical Measures to be Adopted for Their Relief.**

Dr. J. H. Bryan, Washington, D. C. In my experience, the majority of severe inflammations of the sinuses are accompanied by more or less disturbances in the eye, these disturbances varying in intensity according to the severity of the sinus disease; and the reason that they are not more frequently recognized is that they are not looked for until the eye manifestations are self evident. The change in the visual fields is a significant symptom of sinus inflammation, and is generally associated with disease in the anterior cavities; but it is also frequently found in disease of the posterior sinuses. Congestion of the papilla is an early sign of disease in the posterior sinuses. A scotoma and enlargement of the blind spots are so frequently found in posterior sinus inflammation as to make them almost pathognomonic. There is no one operation that is suitable for all cases. The more conservative methods have relieved many serious cases, and if the conditions justify it, the intranasal methods should be tried first. Failing to bring about relief in this way, then one of the more radical measures will have to be adopted; and the operation that offers the best chance of reaching all the diseased parts of the frontal, ethmoidal and sphenoidal cavities is the one proposed by Killian. In maxillary sinus complications, a combination of the Killian with the Caldwell-Luc operation is preferable.

*DISCUSSION.* Dr. De Schweinitz. The subject to which the essayist has called our attention is so important (and for this presentation we are so much indebted to Dr. Bryan), that I should like to add a few words to those which you have heard. Among the interesting visualfield phenomena that have been de-

scribed are the so-called Van der Hoeve scotomas. As we all know, this observer (and his observations have been confirmed by De Kleyn and others), has shown that before either optic neuritis or retrobulbar neuritis appears in sinus disease, there may be an enlargement of the blind spot; or it may be surrounded in its enlarged state, or without this, by rings of color scotoma. With the relief of the sinus disease, this condition of affairs disappears. The important fact that these scotomas may antedate, sometimes by a considerable period of time, the organic changes in the optic nerve, cannot be too frequently emphasized. By the presence alone of such scotomas the necessity of operative interference, especially as this relates to ethmoiditis and sphenoidsinus disease, may be determined—determined, moreover, before the ophthalmoscopic lesions have developed. The members of the Section of Otology and Laryngology of the College of Physicians will remember that this subject has been discussed in their presence by the younger Dr. Risley and by myself, when we brought before the Section our observations on this important matter, confirming those which have already been recorded by Van der Hoeve and others.

The essayist of the evening has in full elaboration pointed out the conspicuous ocular manifestations of sinus disease; but I should like to refer to others not so conspicuous, and yet none the less equally diagnostic in value. For this purpose, I shall quote from some previous writings of my own on this subject. All of us are well acquainted with edema of the eyelids, so conspicuously evident in acute ethmoiditis, and in antral and frontal sinus disease, sometimes present for long periods of time, and sometimes appearing in the form of a typical recurring or fugitive edema. Occasionally, however, in place of the edematous manifestation, there is an actual blackening of the lids suggesting an ecchymosis, which, like the simple edema, recurs from time to time. It is important to take these manifestations into consideration, because fugitive edema of the lids in some circumstances has not infrequently been mistaken for an angioneurotic edema or for the common fugitive edema that is present in certain types of migraine.

A still more interesting ocular symptom of sinus disease is the phenomenon that I have described under the name of fugitive episcleral congestion, which resembles somewhat the fugacious periodic episcleritis of Fuchs. This, of course, must be dis-

tinguished from the well-known congested conjunctiva and watery eye, so constantly present in sinus disease, and which is one of its well-known signs. Like fugitive edema of the lids, it comes and goes, and differs from ordinary episcleritis in the deeper hue of the dilated and tortuous vessels and in the association of violent headache. These attacks may sometimes last for weeks, or even months, before their real etiologic factor is discovered. They may also be associated with blurred vision, which is due to a concomitant edema of the corneal epithelium, which in these circumstances somewhat resembles the appearance that is produced by the prolonged action of cocaine. I may refer, in this connection, to the case studied with me by Dr. S. D. Risley, Dr. Randall and Dr. Freeman, of a young woman who, after several months of these recurring episcleral congestions, the nature of which was totally unsuspected, developed a gradually increasing blindness associated with central scotoma, vision having been reduced to bare light-perception, all dependent upon a slight purulent sphenoiditis.

The ordinary central scotomas of sinus disease, such as have been described by Jessup, Fuchs, Birch-Hirschfeld, Knapp, and many other observers, are well known; but there are some unusual forms of these scotomas that deserve additional attention. In the patient to whose case history I have just made reference, they assumed at first a paracentral form, and gradually developed into hemianopic scotomas, somewhat resembling the hemianopic scotomas of Treitel, and slowly reaching a central position, where for long periods of time they maintained their position; until, after treatment, partly intranasal and partly operative, by Dr. Freeman, the condition was relieved; and the patient today has practically normal vision. I have also seen, especially in this girl, a ring scotoma as the first manifestation of sinus disease, in turn developing into a complete central scotoma; and these ring-shaped scotomas have recently attracted considerable attention. Considering the situation of the sphenoid sinus disease, it is not difficult to understand that there may be a temporary paracentral or hemianopic scotoma. All of this work affords an excellent example, as the essayist has pointed out, of the importance of special branches of medicine and surgery, keeping in touch with each other's work and observations; and by such study, greater precision in diagnosis, and consequently in therapeutic application, is acquired.



Dr. S. D. Risley, Philadelphia. I have been much interested in the admirable paper presented by Dr. Bryan. In most respects, the teaching of this paper is strictly in accord with my own experience with the class of cases under study. I have been rather disappointed that Dr. Bryan, in his paper, has said so little about the etiologic factors in sinus disease; and that the chairman has also omitted this important consideration in his remarks about the fields of visions associated with this group of cases. I have not always been able to differentiate the fields of vision and intraocular states, as shown by the ophthalmoscope, when actually due to sinus disease, from the same group of ocular symptoms associated with general toxemias, in cases in which there was no plausible reason to suspect the presence of sinus disease.

By way of illustration, I would state that I have not infrequently seen central scotomata and narrowing of the fields of vision, sometimes transient, but too frequently permanent, in cases in which the ophthalmoscope had shown more or less well-marked edema of the fundus, veiling all details; with large, dark veins, tortuous to the limits of the ophthalmoscopic field, occasionally with hemorrhages in the fibre-layer of the retina or at the macula—and all this, in cases in which it was impossible to demonstrate the presence of disease of any sinus. On the other hand, I have again and again seen the same group of symptoms associated with disease of one or more of the sinuses in the anterior segment of the skull, but I have not always been able to say that the ocular states were due to the disease of the sinus; since both the ocular and the sinus affection were associated with and probably due to the existence of a general autotoxemia. Nevertheless, I am firmly convinced of the justice of the contention Dr. Bryan has made in his thesis, viz.: that ocular affections are not only frequently associated with sinus disease, but are, in fact, due to that disease; but I feel that it is great importance to bear in mind that both affections are due to the same cause, and that both are frequently relieved by suitable general treatment. I have been very much impressed by another fact set forth in the case related by Dr. Bryan, viz.: the importance of early diagnosis in sinus disease. When recognized early, it is often possible to prevent the recurrence of the neurotic conditions described, and to avoid the serious operative measures described in the paper.

Dr. John E. Weeks, New York City. I wish to call attention to the fact that in these cases the unilateral character of the condition is a very important point indeed. From what I have heard this evening, I should infer that both eyes are affected, as a rule, but that, in my experience, is not the case.

Dr. Bryan, closing the discussion: I have never used bismuth paste in the treatment of sinus disease, and cannot say how it would act. I know that it has been used in many instances, but it has not been employed by me. In regard to bilateral affections of the eye, I might say that in one case in which there was a bilateral change there was an abscess on one side and a mucocele on the other. Nerve toxemia can take place from mucocele, as well as from an abscess; and that may have given rise to the change in the other eye. I think, however, that when these bilateral conditions exist, they are probably due to anomalies that occur in the posterior cavities. You never can tell to what extent the nerve of one side is involved alone; for, as has been stated in the paper, the sphenoid may be in relation to both nerves, or the posterior ethmoid cell may affect one nerve and not the other, and I believe that the inflammation may be transferred through the chiasm to the other nerve. These are very obscure and difficult questions to contend with, and I am not able to throw any light upon them.

#### **The Newer Operations in Glaucoma.**

Dr. John H. Weeks, New York.—All of the operative measures have for their object the reduction of the intraocular tension to the normal and the maintenance of the tension at or below that point. Nearly all of the operations for glaucoma other than the classical iridectomy may be included under the term, "the newer operations for glaucoma," since all but a very few have been brought forward in recent years. Posterior sclerotomy and trephining back of the ciliary body give good results in sightless, painful eyes, in absolute glaucoma. Sclero-ciliotomy and ciliarotomy probably give temporary relief, at least, and may be of permanent value in cases of absolute glaucoma. Anterior sclerotomy produces a reduction in the tension of the eye that is of a much longer duration. If these operations alone are employed, the tension returns sooner or later. Their greatest value is as a complement to iridectomy. Bjerrum's sclerotomy raises the question of the desirability of inducing and making permanent incarceration or prolapse of the iris, even subconjunctivally

The operations of Rochon, Duregnaud and De Vincentiis must, of necessity, fail to bring about permanent reduction of intraocular tension in a large percentage of the cases operated upon, although a fair percentage of the cases are materially benefited. Cyclodialysis as practised by Heine is apparently losing favor, though it succeeds in effecting a permanent reduction of tension in about fifty per cent of the cases. It is indicated in the advanced cases of chronic glaucoma, especially those in which iridectomy has not succeeded in reducing the tension. The operation of Fergus cannot yet be passed upon, as a sufficiently large number of cases in which it has been performed have not been reported. Its superiority over Heine's operation could result only from a more persistent filtering scar. Operations that contemplate the incarceration or prolapse of iris, the incarceration of conjunctiva or other tissue, or the formation of a cystoid scar without adequate covering are open to the objection that infection may take place at a favorable time, days or years after the operation, and that sympathetic inflammation may occur. Operations that contemplate incarceration or prolapse with adequate conjunctival covering are objectionable because of the necessary distortion of the pupil and, in some cases, the deformity at the site of the wound. If the same good result can be obtained by operations not complicated by incarceration or prolapse, the procedure is much more desirable. The endeavors of Lagrange, Hoth, Herbert, Elliott and Verhoeff are in the right direction. The writer's experience has been almost entirely with the Lagrange operation, and he has records of seventy cases in which it was performed. He is favorably impressed with the results of this operation, and will continue to use it in all suitable important cases, until he is convinced that some other procedure is better.

*DISCUSSION.* Dr. Walter L. Pyle, Philadelphia. From my necessarily limited experience with cyclodialysis, I do not believe it is a primary elective operation for glaucoma. I think, however, that in certain cases of painful blind eyes with high tension, cyclodialysis may be of value and spare the necessity of enucleation. On the other hand, I believe that posterior sclerotomy may be the operation of primary election in certain cases of acute glaucoma brought on by artificial mydriasis; as, for instance, after the instillation of euphthalmin or homatropin. Nine years ago, I saw such a patient with incipient

cataract. To examine the entire lenticular area, I instilled one drop of homatropin (two per cent solution) in each eye. She left the office with no apparent signs of discomfort, and no signs of glaucoma. At three o'clock the next morning, she awoke with excruciating pains in her eyes; and at nine, I found her entirely blind, with double acute glaucoma. There was no light-perception; she could only feel the heat from the lighted candle on her face. The eyeballs were stony hard. I decided to perform double posterior sclerotomy. Entering a Von Graefe knife quite posteriorly in the lower segment of the eyeball, along the meridian, I let out a load of vitreous, and then used dionin. This was over eight years ago, and then the use of dionin was not in great favor in Philadelphia; although there had been some encouraging French reports on it. I also gave a hypodermic of pilocarpin, to produce profuse sweating. The pain was relieved immediately, and on the next day the patient began to see. By the fourth day, she seemed to have quite recovered her vision.

I reported this case soon afterward, at a meeting of the American Ophthalmological Society in Washington; and I have seen the patient every six months for the last eight years. I saw her yesterday, and the visual fields were then intact and the color-sense uninvolved. The tension is practically normal, and the corrected visual acuity is perfect. At the time of the report, several members of the Society skeptically suggested further communications. I have been giving periodic additional reports on this case ever since.

This is not my only case of the kind; and I believe that in all cases of artificial acute glaucoma in the middle-aged, the elective operation is a posterior sclerotomy, followed by the use of dionin, and of eserin and pilocarpin. In chronic cases, dionin is of less value; as the eye soon develops a tolerance for it. I have often used powdered dionin when solutions were insufficient to produce the desired lymphogogic action.

Posterior sclerotomy is an easy operation, and I think it safe to recommend it as a primary procedure in very violent acute cases of glaucoma. An iridectomy is often complicated with some wound of the lens-capsule, particularly if the corneal incision is made with a cystitome. Posterior sclerotomy is much easier. A subsequent iridectomy can be done much more easily after the surgeon has first reduced the tension by means of



the scleral incision, and often there will not be a necessity to resort to final iridectomy. I have never had serious vitreous hemorrhage after posterior sclerotomy. I invariably make my scleral incision, well back, and in a meridional direction. I have several times seen slight hemorrhage into the vitreous entirely absorb in a few days.

Dr. L. Webster Fox, Philadelphia.—All present here to-night thoroughly appreciate Dr. Weeks' admirable review of a subject which has from time immemorial played a very important role in diseases of the eyes, and no one has followed the operative methods for the relief of glaucoma with closer attention than myself. I have practised iridectomy for many years, and that is my operation of selection at present. As these newer operations were developed, I paralleled the cases; that is, I performed an iridectomy on one eye, and the newer operation on the other, in such cases when the disease existed in both. Under such favorable clinical conditions, I have been able to make very accurate deductions as to the relative value of the different methods.

Recently I had an opportunity of examining two cases of chronic glaucoma that had been trephined by Major Elliot himself—patients of Dr. Bickerton, of Liverpool, England. They were beautiful operations; and after six weeks, the tension, which before the operation had been stony hard, the eyes being painful, was practically normal to touch; and all pain had disappeared. Since my return home, I have repeatedly performed the Elliot operation with his trephine; but I found it a difficult instrument to manipulate. Recently I had a modification of the Von Hippel corneal trephine made, and I can assure you that it has many advantages over the Stephenson or the Elliot trephine. I have also performed the La Grange operation, using the special instruments devised by himself, and carrying out the details as carefully and skilfully as I could. I found, however, that after a certain time—notably on account of the blocking of the filtration wound, the tension would ascend to +2—3, necessitating a sclerotomy after the method of De Weekers.

Dr. De Schweinitz.—I should like to say a word about the Lagrange and the Elliot operation. Dr. Weeks' large experience with Lagrange's operation permits him to speak with authority. I have not so large an experience from which to draw, but with this operation I have had a number of excellent successes; and

yet it is true that occasionally filtration apparently ceases. For example, a patient on whom I performed this operation last March, each eye having been submitted to operation, had a perfect result; and a typical Lagrange filtering cicatrix was evident for many months, the tension remaining normal. Some time during the present summer, however, the filtering cicatrix gradually disappeared and today, although the iridectomies are perfect, it would be impossible to tell that there had ever been a true filtering scar. In this respect, this case illustrates the accuracy of Henderson's criticism. Now it may be that a sufficiently large piece of sclera was not abscised, but I cannot help believing that the ingrowing of epithelium is likely in many instances to check the filtering process after a time.

During a visit to Europe last year I saw the results in a number of eyes submitted to Elliott's operation, although I did not see the operation itself performed. These results led me to try it on my return to this country. The first patient on whom I operated, a man blind from secondary glaucoma, the result of intraocular hemorrhage, came for the purpose of having the eye enucleated to relieve severe pain. When the general anesthesia was complete, I determined to try the result of an Elliot trephining. The tension had been very high, between 40 and 50 mm.; and immediately on the completion of the operation, the tonometer registered only 5 mm. This reduction of tension remained for twelve or fourteen hours, and then the tension slowly returned, rising again to between 40 and 50 mm. Again it fell, under the influence of hot compresses, dionin and eserine; and for thirty-six hours the patient had perfect comfort. Subsequently, with the renewal of high tension, the pain returned, although not so severe as it had originally been; and the patient was unwilling longer to retain his sightless globe. It, therefore, has been enucleated, and will be submitted to microscopic examination; and it should afford a study of some very interesting microscopic sections. In another patient, blind from chronic glaucoma, inasmuch as there was not even light-perception, the tension having been 53 mm. just prior to the operation, the reduction was again excessive, the tonometer measuring 5 mm. at the conclusion of the operation. I have never measured the tension of a glaucomatous eye immediately after the performance of an iridectomy, so that I cannot present a table of comparisons; but the observation, as far as it goes, seems to me to

be an interesting one. In the few operations of trephining that I have performed there have been no reactions. I have not found it a difficult operation, and it seems to me that it should have a satisfactory position in ophthalmic work. I have always used Stephenson's trephine; and although not so graceful an instrument as the Von Hippel, it is nevertheless one that is perfectly satisfactory. If Major Elliot's directions are carefully followed, it does not seem to me that there should be any difficulty in always entering the anterior chamber; and certainly a simple trephining is preferable to one combined with a cyclodialysis, as in Fergus's operation.

Dr. Weeks, closing the discussion: I wish to say a word regarding posterior sclerotomy. The danger in performing this operation in *seeing* eyes is that of hemorrhage from the large choroidal veins. I have employed this operation in blind eyes for the relief of pain in six cases, I think; and in all, the result has been very excellent indeed. The relief from pain and the reduction in the tension have remained for quite a long period of time—as long as the patients remained under observation. In operating, I make a shallow T-incision, and permit one or two drops of vitreous to escape.

Regarding the results of the Lagrange operation, I think that the subsequent treatment has much to do with the success of the procedure; if one will employ massage for some period of time and use mydriatics, the results are certain to be very good. At the present time, I do not look on cases of glaucoma as being very threatening to vision, provided that they come to me before the vision is much reduced.

As regards the Elliot operation, any operation that will make a permanent filter cicatrix will give us a permanent reduction in tension. If the cicatrix is open, the tension will remain low. It may not be quite normal; but it will be normal in many cases, and will remain relatively low. I think that the Elliot operation is as yet too young for us to decide whether it will produce a permanent filter cicatrix or not. If so, it is the desirable operation. It can, of course, be repeated.

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The next meeting of the Oxford Ophthalmological Society will be held July 17, 1912, at Keble College, Oxford.

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Prof. Dr. Wm. Uthoff of Breslau has accepted the chair of ophthalmology at Berlin made vacant recently by the death of Prof. V. Michel.

**CHICAGO OPHTHALMOLOGICAL SOCIETY.**

A regular meeting was held October 16, 1911, with the president, Dr. H. W. Woodruff, in the chair.

**Blood Staining of the Cornea.**

Dr. W. A. Fisher presented a boy, aged eighteen, who was struck in the eye by a piece of iron or steel six months ago. He was treated for five weeks and advised to have the eye removed. When Dr. Fisher saw him there was little evidence of inflammation or irritation, but the cornea was of a dark brown color, with a narrow zone of normal cornea at the outer edge. There was some discoloration in the iris and at the lower sclerocorneal junction, which looked as though it might have been caused by the entrance of iron or steel. The tonometer registered 625. Otherwise the eye was normal, as was the fellow eye. The giant magnet proved negative. The Roentgen was negative. The band of normal cornea increased in width slowly until the edge of the pupil was visible. It is found to be two millimeters wide. It is impossible to say whether the lens is injured or not. Undoubtedly the trouble will clear up in time.

**DISCUSSION.** Dr. O. Tydings said that this was the first case of the kind he ever saw, and believed that these cases are very rare. In six months there has been a remarkable clearing up in the cornea.

As to the pathology, the rupture of Descemet's membrane without rupture of the cornea and the staining even after the cornea was ruptured he could readily understand, because there might be closure of the external layers of the wound in the cornea, a condition which would be met with if Descemet's membrane alone had been ruptured.

Dr. Harry S. Gradle saw this patient two months ago and the condition has improved remarkably since then. It was difficult to say just what it was. There was a clear zone of cornea on the edge. It may have been hemorrhagic organic exudate from the anterior chamber. Why the blood in the cornea should assume this color when much the same condition exists in other cases, with unruptured Descemet's membrane, such as a green discoloration in multiple sclerosis—why there should be a different color here than there is difficult to say. In an unbroken Descemet's membrane it seems that the blood assumes a different tint, probably because it is a different reduction process, whereas

in the ruptured Descemet's membrane the color is said to be dark brown. No explanation has as yet been given of this phenomenon.

Dr. Oscar Dodd presented a case before this Society a number of years ago. An intense staining was present. He also presented another case where it was a question whether the staining was due to a foreign body or to blood. It was the general opinion of the Society that it was due to the former. A foreign body was still in the eyeball. It had been in the sclera several months before it was removed. The cornea was stained very much, as in this case, and the Doctor thought it was due to the metal and not to the blood.

Dr. G. F. Suker saw this patient several months ago and the color was at least four shades darker than it is now. Therefore it is quite probable that the cornea will clear up considerably more. Of greatest interest is the question as to how it got there. It is undoubtedly blood. Dr. Suker doubted that it is necessary to have a rupture of Descemet's membrane to have the blood there. It is undoubtedly an infiltrate. It may have gotten there in the same way that edematous conditions in a glaucomatous eye are caused. It must have gotten through the pectinate ligament. This is the only condition in which there is a passing of the aqueous humor into the cornea. This ligament starts in the posterior layers of the cornea and is a continuation of it. Therefore, it must have been injured and have had an opening large enough to permit of this infiltration. In order to have an exudate of this shape, multiple ruptures of Descemet's membrane must occur, and it is doubtful if such a rupture took place. Descemet's membrane, when ruptured, and with this degree of infiltration, will not heal up with a uniform surface. Therefore, again, it could only have gotten there by way of the pectinate ligament. About two months ago Dr. Suker saw a boy whose entire iris was torn from the temporal side seven-eighths of the distance, one-eighth on the nasal side being intact. There was a little rupture of the cornea on the temporal side, and there was infiltration of blood into the cornea; inside of a week, however, it had disappeared.

Dr. Fisher, in closing, said that the singular thing about this case was its rarity, and yet with such an injury one naturally would expect to see more cases. Of course, in Dr. Dodd's case there was staining from the metal. There are many such cases in the literature.



### Amblyopia With High Refractive Error Improved With Alternating Current.

Dr. W. Franklin Coleman reported the case of a girl of ten years with amblyopia associated with high refractive error, which improved markedly under treatment by the alternating current. The current (sinusoidal) was applied to the eyes and nape of the neck for fifteen minutes daily for three months. Vision was improved from 20/100 to 15/20. Glasses had been worn three years. Patient had accepted

O. D.: 1.75 + 4.50, cyl. 90°.

O. S.: 1.00 + 3.50, cyl. 90°.

No improvement by glasses. No evidences of hysteria.

**DISCUSSION.** Dr. G. F. Suker said that in small children, in whom high refractive errors usually appear, we should bear in mind that sight is not ocular, but mental, and that it depends on the images formed in the retina, to a certain extent, whether they are complemental. If low mentality is present, low retinal perception will prevail, to a certain extent. The cerebral center of visual interpretation can be stimulated by such means as Dr. Coleman has used. Therefore, if the retina be stimulated indirectly, the brain is stimulated and the images are clear, because the patient sees better. These patients with high refractive errors, as a rule, lack mental power to maintain the accommodation necessary to overcome the refractive error. Any correction that will give a clear retinal focus or picture of the object looked at, will give a better interpretation. By doing that, the fusion power is also improved. The visual acuity is increased and stereoscopic vision is stimulated. As soon as stereoscopic vision is increased, binocular vision is increased, and consequently perceptive power, and, in turn, visual acuity. It is also largely a matter of education with these children. Dr. Suker agreed that there are secondary contractions. That being taken away will give another point in clearing up the faulty images formed. High degrees of refractive error, particularly astigmatic, will give oblique images. We all know that in early presbyopes there is a certain amount of astigmatism.

Dr. Faith inquired if the refractive condition of the patient's eyes had been frequently tested.

Dr. Coleman replied that he had examined her repeatedly, but did not prescribe glasses at all.

Dr. O. Tydings observed that the patient was a mouth-breather. Wherever varying degrees of refractive conditions are noted, getting one result today and another tomorrow, the visual acuity is very low. The first thing to eliminate in these cases is a sero-sinusitis. This child's lids are hyperemic and the chances are that the globes are congested. Where any improvement of vision with an alternating current is developed, or any other form of current secures results, it would be dependent entirely on the condition of the sinus. Dr. Tydings suggested that this feature of the case be inquired into.

Dr. Coleman, in closing, stated that he did not examine into this because the child has been improving without correcting other conditions. He thought that we are too apt in cases of high refractive error to let the patient alone. This patient was prescribed  $+6$  D., and it was a good prescription, but she could not see one line better than 20/200, and no better with  $+6$  cylinder than she could without.

#### **Secondary Divergent Strabismus.**

Dr. H. W. Woodruff's patient was operated on about twenty years ago for convergent strabismus. Evidently a very extensive tenotomy of the internal rectus was made, because there were fifty degrees of divergence, with exophthalmos, sinking of the earuncle, and paralysis of the internal rectus, so that adduction was impossible. The eye could be rotated to the median plane from a position of adduction, but could not be adducted beyond this plane. After subconjunctival anesthesia a vertical incision was made through the conjunctiva over the whole tendon insertion. The conjunctiva was dissected backward as far as the earuncle, disclosing a retracted capsule. The muscle fibers could not be distinguished. By incising the capsule and reuniting the cut ends after bringing them closer together, function of the muscle was restored.

#### **Vertical Strabismus.**

Dr. Woodruff: The left eye in this case was turned outward and upward about fifteen degrees in each direction.

R. V.: 6/10      50 + 1.75 ax. 50.

L. V.: 6/30      2.00 + 2.75 ax. 160.

The horizontal deviation was corrected by a tucking of the internal rectus. A partial tenotomy was done of the inferior rectus at the external border, but gave no appreciable result. Later a tucking was done of the inferior rectus, with complete

tenotomy of the superior rectus. This gave the desired cosmetic result, demonstrating that the inferior rectus lends itself to tucking as readily as either of the horizontal methods.

### **Retinitis Proliferans.**

Dr. Woodruff: The patient presented himself with a history of loss of vision in the right eye occurring suddenly a week before. There was a positive history of lues. Vision: Counting fingers at eight inches in the right eye, 20/200 in the left. Ophthalmoscopic examination of the right eye showed a neuro-retinitis with some hemorrhages. Patient complained of severe headaches. He was treated with mercurial inunctions and potassium iodide. Vision slowly improved up to ability to count fingers at five feet; in two months there has been no change in vision. There is now also a hyperplastic formation over the discs to the nasal side, which is gradually increasing in size.

*DISCUSSION.* Dr. Thomas Faith thought that the results in the strabismus cases were good. There is little bunching after seven weeks—not more than would be present after any kind of operation.

Dr. Oscar Dodd considered the results good, especially in the case of convergent strabismus. He operated on a case where there was a 30° vertical deviation, which was congenital; almost a complete tenotomy was done. Not getting the lateral fibers of the superior rectus, an advancement on the inferior followed, bringing them down so that they were nearly parallel, but it came back and there is still marked deviation. The inferior rectus was advanced as much as possible at the time.

In regard to cases after a complete tenotomy, where there is no movement, Dr. Dodd believed that when the muscle is entirely cut off, as this apparently was, and all lateral connections are severed, the fascia which comes up is attached to the wall of the orbit and apparently pulls the muscle away from the eyeball, and there is no deviation. In these cases there is no connection between the severed muscle and the eyeball, so that if one can find it in the action of the muscle there will be a pulling backward of the caruncle and no action on the eyeball. The ability to get a result in these cases depends on whether there has been a large amount of traumatism done at the time of operation, so that the muscle is bound down by a mass of cicatricial tissue. If it is, it is practically impossible to separate it and bring it

forward and attach it to the eyeball and get any movement. In some of these cases the speaker had been fortunate enough to separate the muscle, bring it forward and, although the action was weak, the result was fairly good. It is a much more difficult operation than the ordinary advancement.

Dr. Richard J. Tivnen said that the bunching following a tendon tucking disappears surprisingly early.

With reference to the difficulty of getting the muscle when it is so far back following a tenotomy for a convergent strabismus, the speaker recalled two patients who were sisters on whom tenotomies had been done by another physician. In one case Dr. Tivnen did the operation Dr. Dodd spoke of, with fairly good result. In the other case he failed to get any result.

Dr. George F. Suker suggested that Dr. Woodruff practically made a new muscle. The muscle attachment to the capsule is disregarded, but the tendon is simply cut horizontally and a new muscle is made. That is a step not described anywhere heretofore. It is a new method of restoration of a muscle.

As to the thickening in these tucking operations, that disappears very rapidly and will do so more rapidly providing, when the operation is completed, the site of the wound is thoroughly covered with conjunctiva, so that no opening is left. That has been the speaker's experience with the operation, which he has been doing for a number of years. There has been considerable thickening, but when the conjunctiva was coapted thoroughly there was not so much thickening, and what there was disappeared rapidly.

Dr. D. C. Orcutt recently operated on a patient by this procedure. For some time he has been experimenting with a stitch to keep the muscle from slipping away. He inserts a mattress suture at the sclerocorneal margin and brings it back through the muscle, at the same time fortifying it with a Worth suture. Silk is used. He has obtained perfect results, having made an advancement of 30 in one case.

Dr. Clark Hawley complimented Dr. Woodruff on his tucking operation. Dr. Woodruff performed it for him in his clinic, with a result that was simply perfect. The operated eye was practically a blind eye, but the cosmetic effect was as good as in his own case.

Dr. O. Tydings believed that, as a scientific body, we should

insist on exactness in terms. He did not know of anyone who had succeeded in making a new muscle. These muscles are not attached to rubber bands, so that when they are cut they can be picked up and brought back and advanced. While it may not be possible to recognize the muscle fibers in the tissues, they are there just the same, and when the tissues are drawn forward the cut ends of the muscle are practically united. Dr. Tydings had a case where the cosmetic effect was perfect, so far as the eye was concerned.

As to the case of retinitis proliferans, if a patient has had syphilis at some time during life, everything he may have afterward is attributed to the syphilis, and yet it does lay the foundation for many conditions. A most frequent cause of hemorrhage, especially in the retina, is tuberculosis. In syphilis there occurs an obliterative endarteritis, and while this man may have had syphilis, the question of tuberculosis should be eliminated.

Dr. Woodruff (closing): Worth says, in his book on "Squint," that the tendon lies over against the orbit somewhere. The point I wanted to bring out especially is that you can find the muscle; therefore, I simply dissect the conjunctiva back as far as the carbuncle and under it, and then take hold of the edge underneath the conjunctiva, which was Tenon's capsule, and probably contains muscle fibers, and make a couple of horizontal slits in it, fashioning a tongue shaped flap. This is not a new muscle, but simply bringing together the muscle fibers which are not visible. Otherwise the muscle would not have the power of contraction. I have always gone on the theory that you can tenotomize an external rectus muscle with less regard to ultimate results than you can the internal rectus, but there is a limit even to that. There is some danger of over-correction if the operation is combined with an advancement or a tucking. There is a slight convergence in my case. I started out on the theory that it was impossible to get on over-effect. I did all I could to get an over-effect. I have had few cases of secondary divergence to operate on. I have seen them, but have not been willing to operate, but now I shall not hesitate to do so, because I feel that I can promise the patient a satisfactory result.

#### **Fürstenau's Roentgenstereometry.**

Dr. Max Reichmann: The method is based on certain geometrical calculations which show that the vertical distance of an



object examined from the fluorescent screen or the sensitive plate depends entirely on the distance of the two shadows which are obtained when two bundles of Roentgen rays reach the object at the same time, and from the same distance, provided the distance of the tube from the plate is constant, as the distance between the two anti-cathodes also must not vary, the same being always  $6\frac{1}{2}$  centimeters.

### **Foreign Body in the Eye.**

Dr. Thomas Faith exhibited a patient in whom all that could be seen at first observation was a corneal wound, a small healed wound in the iris, and a slightly opaque lens. Dr. Reichmann located the foreign body. The magnet over the center of the cornea, and a piece of metal immediately bobbed up. It was just behind the iris, where Dr. Reichmann had located it. Dr. Faith extracted it, but in doing so pulled the iris loose.

*DISCUSSION.* Dr. Fisher congratulated Dr. Faith on the result obtained in this case. If the incision had been made below instead of above, the iris would have been pulled out just the same.

We are, of course, always glad to have the assistance of a Roentgen expert in this work, but Dr. Fisher wants him to tell the location of the foreign body without having to look at the plate himself. The speaker has found that the patient may lose his eye. If the operator in making the plate will watch the good eye, he can tell whether the eye is moving or not. If the patient moves the eye, the piece of steel is apt to be missed.

Dr. Coleman: It is very important to localize a foreign body in the eye. Unless Dr. Fisher has changed his views, he operates first, and then gets a skiagraph after the operation to see whether he has removed the foreign body. I prefer to have the picture first, so that I can tell just where to put my magnet. I like to get as close to the foreign body as possible because the fraction of the magnet is inversely to the square of the distance. I do not want to draw the foreign body clear across the eye. Dr. Faith in his case followed Haab's rule of withdrawing the foreign body through the front. I have devised three or four different tips which I can attach to the large tip, and, if necessary, insert through the scleral wound. I cannot see the advantage of drawing this through the front at the great risk of wounding the iris and the lens, particularly if the foreign body has not caused a cataract in entering. If the body has entered at the posterior

sclerocorneal margin, Cobb reverses the polarity of the magnet and shoves the foreign body back, but I think that was a pure coincidence. If you will take a small irregular particle of iron or steel, approach it with a hand magnet, and reverse it rapidly, either end will attract equally well.

Dr. Fisher: I do not take out a piece of steel through the sclera and I do not go behind the iris. I always pull the steel out through the pupil when the lens is injured. I do not have a skiagraph made when the lens is injured, because I want to remove the steel as soon as possible. If the lens is injured, it is just as well to take the steel out through the pupil, as any place; in fact, a little better, and the skiagraph would not help you at all.

Dr. H. W. Woodruff: Haab, in a paper read before the American Medical Association in 1902, laid stress on placing the tip of the magnet over the center of the cornea, and have the piece of steel pass between the lens and the ciliary body, drawing it through the pupil into the anterior chamber. In a recent article he expresses regret that his remarks were not adopted by American ophthalmologists, and that the trend of opinion in this country seems to be that the foreign body should be extracted through an incision in the sclera. If a foreign body has but recently entered the eye through the cornea and passed into the vitreous, withdraw it through that opening. Stopping to make a skiagram does delay the operation. In a recent case I saw the patient half an hour after the injury, and shortly afterward I succeeded in extracting the piece of steel through the point of entrance. The interesting point in the case was that the lens did not become opaque. The patient has 20/20 vision. There is still the line in the lens through which the foreign body passed, but the remainder of the lens is clear.

Dr. Max Reichmann: You can extract a piece of steel with a magnet without an X-ray picture if the steel is in the eye, but if it is in the orbit you cannot extract it. To determine the location of the foreign body you must have a skiagraph. Formerly, I took two pictures to localize a foreign body. Now I take only one. The Sweet method is a good one, but very complicated. The stereoscopic method is excellent. It shows the location of the foreign body exactly, but it is difficult to make these stereoscopic plates. Another method is to make two pictures at right angles to each other. The objection to this method is that the patient

does not keep his eye perfectly quiet. Furstenan's method is simple and exact. I cannot watch the good eye to see whether it is moving or not because I am not anywhere near the eye while the tube is in action. I remain in a lead-lined cabinet.

Dr. Faith expressed surprise at what Dr. Coleman said about drawing the foreign body into the anterior chamber. He has seen it occur many times in rabbits' as well as in patients' eyes. He did not think it difficult to do this. Perhaps in this case, if he had extracted the foreign body by means of a probe, he might not have drawn out the iris. Dr. Faith has had cases in which the result was better than in this one, but Dr. Reichmann certainly helped him to find the foreign body in this eye. He followed Haab's instruction of placing the tip of the magnet in the center of the cornea, but this is the first time that he had a foreign body entangled under the iris, which would not loosen. It looked more like a nail than a small piece of metal, a millimeter or two in diameter.

WILLIS O. NANCE, Secretary.

## COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF OCTOBER 21, 1911, IN DENVER.

DR. D. H. COOVER, PRESIDING.

### Symmetrical Corneal Opacities of Unusual Type.

Dr. G. F. Libby presented a woman of thirty-seven, with a symmetrical opacity about 5 mm. in diameter just below and to the nasal side of each medium-sized pupil. Their color was whitish, with a faint yellowish tinge, and a few fine vessels penetrated each opacity. The corneal epithelium was smooth and not elevated. The proper substance of the cornea was deeply invaded. The opacity of the right eye was of one and a half year's duration; that of the left, one year. In the five months the case had been under Dr. Libby's observation there had been no change in the opacities; although the patient had been treated for intestinal autointoxication, 15 grains of potassium iodide had been administered t. i. d. and yellow oxide of mercury ointment and massage had been applied to the opacities, for three months. The Wassermann reaction was negative. The tuberculin test would be administered soon. The family history revealed no ocular defects, and the patient gave a history of continued good health. With the correction for 1.75 D. of mixed astigmatism, R. V.=5/6, L. V.=5/5, with normal accommodation. Viewed through the corneal microscope the right opacity presented the appearance of a mass of

closely packed cholesterin crystals, which was the case in only the nasal fourth of the left opacity. A slight translucency in the central portion (one half) of the opaque area in the left cornea was doubtless due to the fact that crystallization of the infiltrate had not yet occurred in that location. The temporal fourth of this opacity was more opaque than the central zone, but it showed no crystals.

*DISCUSSION.* Dr. Jackson said the patches looked like the invasion of some organism. Had the appearance of a colony on a culture plate. Did not think though that it was an independent infection. Was of the opinion that there was a strong constitutional element in it. Such opacities generally appeared in earlier life and usually in the center of the cornea instead of near the edge as in this case. Still felt that they were closely allied to hereditary or family opacities. Considered the case a very rare one and one of great importance.

Dr. Neepier thought that it was an exudate thrown out by an interstitial invasion and that the sites were merely a coincidence. Because of the blood supply keeping up the life did not think there would be much change, otherwise deposits would become more flakey and tend towards calcareous degeneration. Had seen two cases of a somewhat similar appearance in which the deposits decreased in size.

Dr. Walker thought that they were of central origin. Some trophic change causing impaired nutrition.

Dr. Bane thought the presence of the cholesterine deposits was apparent to the naked eye because of the peculiar glistening appearance of the spots.

Dr. Strickler felt that in view of the two spots being symmetrical that they must be due to a trophic change.

Dr. Magruder suggested a microscopical examination if such be possible. Thought that the depth of the deposits meant much.

Dr. Pattee thought that they were the results of a dyscrasia.

Dr. Sisson suggested a tubercular origin. Had seen a case in which there were large sized deposits of a yellowish color in the substance of the cornea although not symmetrical in outline. It was a well known fact that patients suffering from tubercular eye lesions did not as a rule present marked constitutional symptoms.

Dr. Hosmer thought that if they were the result of a nu-

tritional change stimulative treatment in the form of dionin would certainly be indicated.

Dr. Conant was of the opinion that if the spots were the result of a trophic change would not have the mesh of vessels present as in this case.

Dr. Sedwick thought that there were trophic changes. Suggested stimulative treatment. Intermittent X-Ray.

Dr. Coover had a case at present in which there were deposits in the cornea of a similar appearance except that they were deeper and had no blood vessels running to them. They came in the clear cornea following a general haziness and were symmetrical in outline. Negative Wassermann and patient gave no tubercular history but reacted to tuberculin. Was given tuberculin.

### **Sarcoma of the Choroid.**

Dr. W. A. Sedwick presented a woman 45 years of age suffering from an intra ocular growth of the right eye. Patient gave the following history: Father died of cancer of the stomach. General health not very good. Complains of stomach trouble, pain after eating and following any exertion. One and one half years ago noticed that she could see only one half of an object with the right eye. About two months ago eye began to pain, the pain being intermittent in character. Examination showed a small red area at the inner margin of the limbus running to the inner canthus, and down to the lower fornix, V.=O. D. moving objects. O. S. 6/6. No increase of tension. Ophthalmoscope revealed a mass situated just back of the iris on the nasal side. The anterior and lower portion was dark while above and posterior it was lighter in color. Transillumination showed the growth involved part of the ciliary body extending back possibly 10 mm.

**DISCUSSION.** Dr. Jackson thought the case presented some peculiarities in appearance that would suggest a cysticercus. He could see no choroid or tumor vessels. But owing to the rarity of the cysticercus in this location he was inclined to the belief that this was a sarcoma.

Dr. Coover was impressed by the same points as Dr. Jackson, and also noticed that he could get a reflex though a portion of the mass which was characteristic of cysticercus.

### **Large Floating Opacity in the Vitreous.**

Dr. Sedwick also presented a boy 15 years of age with



marked loss of vision in L. E. Family and past history negative except that five years ago had a powder explosion which burned the lashes off the left eyelid, but so far as he was aware there was no injury to the eye. At present has asthenopic symptoms with stomach trouble which caused him to seek the services of an oculist. V.=O. D. 15/15.

When the eye is turned inward a floating body appears from behind the outer margin of the iris, and swings over the field extending almost entirely across a dilated pupil. It appears almost 2 mm. in width.

*DISCUSSION.* Dr. Bane was of the opinion that the traumatism must have been greater than the patient was aware of at the time. Retina appears hazy, and looks as if elevated. Thinks there is a degeneration of the blood vessels further back.

Dr. Neeper observed scar tissue to the nasal side of the fundus.

#### **Double Hemorrhagic Papilledema.**

Dr. Black presented a man aged 30. First seen July 31, 1911. At this time he was complaining of severe headache and not seeing well. Examination revealed a double hemorrhagic papilledema with 5 D. swelling of right disc and 7 D. of left. An examination was made by a neurologist with a diagnosis of Pachymeningitis Luetica Basas, with localized areas of hyperphasia. He was placed upon mercurial inunctions of one drachm of mercurial ointment twice daily. In a few days' time his headaches disappeared and slow but sure improvement in vision took place. In thirty days' time the hemorrhage had disappeared from the oedematous nerve heads and there were two dioptries less swelling in each eye. At this time the swelling presented an unusual appearance. It ran off into brushed out splotches from what was estimated to be the disc margins. This appearance became more pronounced as the oedema receded until the conclusion was reached that there was a case of congenital opaque nerve fibers occurring in each eye which had from the beginning modified the appearance of the oedema. At the present time the oedema is all gone and the appearance is typical of congenital opaque nerve fibers. The question that presents itself is whether the condition is congenital or whether it is the result of a degenerative process incident to the oedema from the choked disc. Vision at present is normal and all evidences of brain disturbance have disappeared under the use of

mercury by inunction. The improvement was so rapid and satisfactory that one is lead to question whether salvarsan could have acted more rapidly.

*DISCUSSION.* Drs. Jackson, Coover and Sedwick were of the opinion that the opaque nerve fibers were congenital and not the result of the oedema.

#### **Glaucoma.**

Dr. Coover presented a young man of twenty suffering from increased tension in the right eye with total loss of vision, and a retinitis proliferans in the left eye. He gave the following history: July 4, 1911, O. D. became hazy and remained so about two hours. The following day the haziness appeared and remained all day. No pain but eye was inflamed. From this time on vision was blurred and continued to grow worse. On September 29, he had his first attack of pain following which the inflammation cleared up. On October 2nd, had a second attack of pain which has continued at intervals until the present time. The attacks of pain have been accompanied by vomiting. T. reached as high as +3 cornea anesthetic, and pupil dilated. No fundus reflex. One peculiar feature of the case is that the patient obtains some relief from the pain by placing the head in various positions, at times practically standing on his head, which position he will maintain for hours. Had responded to no line of treatment. Said had discharge from nose at times.

*DISCUSSION.* Dr. Sisson said considering the patient claimed to get relief by placing the head in various positions, such would suggest the possibility of Sinus trouble, the position favoring draining. At the suggestion of Dr. Coover he had gone over the nose carefully, shrinking down all the structures with adrenalin, but failed to find any evidences of sinus involvement. But as is often the case sinus trouble can exist when the nasal examination is nil, therefore he would not feel like excluding it.

#### **Double Optic Atrophy.**

Dr. H. R. Stilwell presented a case of double optic atrophy of specific origin in a man forty-one years of age. His vision had been failing for past five years. First seen May 26, 1911. V O D 16 O. S 130. At present V O D 4 20 O. S 4/60. No locomotor symptoms. Has been taking large doses of K. I. and strychnia since first seen. Wassermann positive. Dr. Stilwell presented this patient to bring out the experience

of the members present in the use of salvarsan in such cases as he intended giving it.

**DISCUSSION.** Dr. Coover had used salvarsan in several such cases with marked improvement. Thought this was a good case for it. Dr. Sedwick had seen a case of diplopia and optic neuritis of specific origin treated with salvarsan in which the diplopia disappeared entirely and vision improved markedly. He would give it in this case.

#### **Foreign Body in the Lens.**

Dr. Edward Jackson showed a case in which a fragment of steel had been driven into the lens. It was situated in the anterior and central portion where it was plainly visible to the naked eye. Opacity of the lens substance had immediately followed. At the present time the fragment was being well tolerated, there being no marked inflammation of the surrounding eye tissues. Extraction of the lens including the foreign body would be made.

#### **Congenital Cataract, Epithelioma and Peculiar Colored Pigment Deposit in the Choroid.**

Dr. Walker showed two cases of congenital cataract; one in a young boy unoperated, and the other in an adult operated with 6/6 V.

A man fifty-three years of age in which he had twice removed a small growth from the right eye. It was situated at the sclero-corneal junction on the temporal side, and at the time of removal resembled a pterygium. Pathologist reported it to be an epithelioma. At the present time there were some small nodules beginning to appear at the site of removal. A young man twenty years of age who was recovering from an attack of keratitis, iritis and vitreous opacities. Examination with the ophthalmoscope revealed the presence of a bluish white deposit just below and to the outer side of the disc. It was over two disc diameters in size, and there was no evidence of any inflammatory changes around it. It appeared to be composed of pigment granules of a bluish cast rather than black. Patient gave a history of the eye turning out since a child.

**DISCUSSION.** Dr. Chase would use the X-Ray in the case of epithelioma.

Dr. Coover would also use the X-Ray but thought the case a good one to use radium in.

Dr. Neeper thought the pigment deposit congenital.

ELLET O. SISSON, Secretary.

## EYE, EAR, NOSE AND THROAT SECTION OF THE JACKSON COUNTY MEDICAL SOCIETY.

October 19th, 1911.

W. N. REED, M. D., CHAIRMAN.

### Chicken Bone in Throat.

Report of Case By Dr. J. S. Weaver.

Dr. Weaver said that the bone was not lying in the larynx, but directed toward it, or possibly lying anterior to the epiglottis tucked in between it and the base of the tongue; this he concluded from its discovery after a prolonged search. The bone was about two inches and a half. It was finally dislodged and expelled with difficulty.

### Dacryo-Cystitis.

Dr. Weaver also presented a case of *Dacryo-Cystitis* in baby 6 months old. Congenital Stenosis of the nasal ducts. The nasal ducts were both opened under general anesthetic. At present the one side is functioning well while there was trouble with the other. He asks advice of the section as to further treatment in a child of so tender an age. Discussion following showed wide difference of opinion. Some advocated leaving these cases take care of themselves in that nature frequently overcomes the stenosis. Others recommended the use of lachrymal probe. Again he was advised to trust alone to the syringe. All of these methods are successful in some cases while they fail in others.

### Tumor in External Auditory Canal.

Report of Case, Dr. Hugh Miller. Patient, M. B. of Mena, Ark., age 25 years, Express messenger. Two weeks ago patient having experienced uneasiness in right ear for more than a year, called on a physician to ascertain his trouble who making a diagnosis of abscess advised lancing. Under cocaine attempt was made to open it. Patient lost consciousness, in which condition he was removed to his home. Following which epileptiform seizures succeeded one after the other from Friday until Monday morning when I removed the growth under ether anesthetic. No further epileptiform seizures.

The pathologist reports the growth to be a mixture of serumen and epithelial offcast.

### Vernal Conjunctivitis.

F. K., of Kansas City, Mo. Presentation of patient by Dr. Hugh Miller. The patient was a boy 10 years of age, of

good health and family history. When the case was first seen a diagnosis of trachoma was made first because of the round appearance of the bodies, and second because of the baby sister having had eye trouble during early months of the year. Under ether the bodies were removed thoroughly, but their return was very prompt. Some days later the growths were larger than before their removal, at which time a diagnosis of vernal conjunctivitis was made. (P. S., Dec. 12, 1911. Second has resulted in cure, Dr. H. M.)

### Cyclophoria.

Paper and report of cases, Dr. J. Wallace Beil.

Dr. Beil discussed briefly the pathology and symptomology. He recommends that in connectiong astigmatism note should be taken as to the effect secured by cylinders on parallel lines at reading distance. If patient finds the lines assuming other than the parallel position the axis must be sought which will restore parallelism and secure the best possible visual acuity. To work out these cases requires much time and painstaking. He reports several cases sufferers of long standing, who had almost reached the point of despair whom he had succeeded in affording perfect comfort with satisfactory vision.

HUGH MILLER, Secretary.

## MEETING OF OPHTHALMIC SECTION, ST. LOUIS MEDICAL SOCIETY.

NOVEMBER 1, 1911.

DR. H. M. POST, PRESIDING.

Dr. F. E. Woodruff presented a patient with the following history: Child, five years of age, came to Washington University Eye Clinic about two weeks ago. A nurse who had been called in to attend another member of the family had observed a white reflex in the patient's left eye and called the parents' attention to it. Family history good. No history of any serious illness, except an attack of typhoid two months ago which was followed by an uneventful recovery, and no complications, unless this eye condition be one. The eye as you see it does not need describing. One thing that deserves notice is the pupillary reaction in right eye when the left eye is illuminated. I noticed on the first day some retinal reflex at the upper and nasal side as well as the temporal side. There is none on the nasal side now, nor did I see any after the first



day. The other eye appears normal in every respect, and has normal vision.

Dr. Barek. I think the exact diagnosis in this case can hardly be made now, but possibly can at a future time. The picture is certainly not one of glioma such as we usually see. Excluding glioma, the diagnosis lies between metastatic infection of the vitreous, commonly called metastatic choroiditis, and an entozoon. Of course we ought to know more about the typhoid fever which the patient is supposed to have had. So far we have only the statement of the father. Typhoid, like other infectious diseases, may cause metastatic affection of the vitreous, but it is more or less of a purulent character, accompanied by inflammatory symptoms. Such have been wanting in this case, as far as the history goes. Furthermore in metastasis from infectious diseases, the color of the infiltrate in the vitreous is yellowish, whilst here the color appears to me to be whitish-gray without any yellow tint.

Dr. Post. In a case of retinal detachment we would probably find some of the retina normal, whereas in this case we can see no normal retina.

Dr. Ewing.—I remember opening several pathological specimens in the University at Kiel in which the vitreous had this appearance in places. It was called an albuminoid exudate into the vitreous. I have since had such specimens following injury which had been fixed in formaldehyde. It looks to me like a general albuminoid exudate into the vitreous which had not become purulent. It is a condition which I have never observed in the living subject. Until a more satisfactory explanation can be found, I am inclined to rest on the theory of albuminoid exudate that either came on suddenly or was so formed that it created no inflammatory disturbance, not even sufficient to redden the conjunctiva. The other three conditions possible, are tuberculosis, glioma, and entozoa. It has not the appearance of a glioma.

Dr. Barek.—We do not know how long this condition has existed. It was discovered accidentally and the connection with the possible typhoid is mere supposition. But one thing is certain, and that is the presence of cholesterin in the vitreous. The glittering crystals of this substance cannot be mistaken. Furthermore, I believe the round and oval shaped gray

bodies, which we see floating around in the vitreous during movement of the eye-ball, to be colloid bodies, without making any more positive statement as to their origin. There seems to be no increased intra-ocular tension at present, which speaks against the probability of a tumor. I do not recollect to have seen such a picture of the vitreous before with the ophthalmoscope, but I have some specimens where the appearance of the vitreous is quite similar. They are cases of infection of the vitreous after perforating injuries. In them the entire vitreous is transformed into floating masses of whitish-gray color. There is scarcely any yellowish tint such as we find in suppurative processes, but as these specimens have been lying for some time in formal solution, I am unable to say how much this may have to do with the color.

Dr. Post.—The condition seems to me to be associated with the fever. There was probably a low-grade suppurative chorooiditis in the eye accompanied by an exudation into the vitreous. This exudate gravitated into the lower portion of the vitreous chamber producing the condition we have here. In looking into the eye, a level surface can be seen stretching back a considerable distance from the front of the vitreous body, and this level surface moves up and down as the eye is moved about. There seems to be a number of small globular bodies resting on this level surface corresponding to those which we see in the vitreous above. It does not impress me as a case of tumor, but as one of those suppurative processes occurring in various parts of the body following low fevers. I am inclined to think this is the condition and that we may possibly find it to clear up in the course of time.

#### **Concussion Cataract with Recovery.**

Dr. J. W. Charles.—On Jan. 15, 1910, a boy, eight years of age was brought to me with the statement that while coasting his forehead was struck by a sapling lying horizontally. The eye became red and the mother consulted her practitioner who used drops to dilate his pupils. Without correction, his vision was O. D. 10/120, O. S. 10/120, also with stenopeic disc ophthalmometer gave O. D. As. 0.75 M vertl., O. S. As. 0.75 M Vertl. Pupils large and respond only slightly to light. Oblique illumination and the ophthalmoscope showed both lenses clouded by not only a few striations but with a very distinct

diffuse opacity resembling zonular cataract. Fundi normal as far as could be seen. His conjunctivitis was treated for several days and on the 18th, O. D. V. 10/120, O. S. V. 19/120, not improved.

The patient was taken south by his mother and I heard nothing further from him until word reached me that I was severely criticised for having made a mistake in diagnosis because he did not have cataract and that the eyes were normal. Dr. Ewing has kindly allowed me the use of his notes for the completion of this history. In May, five months after the inquiry, O. D. V.=20/15, O. S. V.=20/15 and media and fundi were normal. Although the child's vision was so low and the lensopacities were demonstrable to the mother, the fact that I spoke of the possibility of an operation in the distant future if the lenses did not clear up has caused the mother to believe that I made an unpardonable mistake. Certainly, if a child were brought to the ophthalmologist with such a condition, he would feel inclined to tell the parent not to expect much chance for the better because the great majority of these cases are congenital and do not retrogress. Many cases of re-absorption of traumatic cataracts have been reported and one would expect to make a guarded prognosis in the event of a blow on the eye, but when only the head had been struck without a history or manifest signs of injury to the eye, it was natural to think of the condition as congenital. Even lenses with commencing senile cataract have been found clear several years after. This opacity was not the ring-form opacity of the anterior surface described by Vessius in 1906, as resulting from contusions of the globe, but it more nearly resembled the ordinary faint forms of zonular cataract. In the last number of the *American Journal of Ophthalmology*, Dr. Shoemaker reports from the *Journal of the A. M. A.*, the views of Clapp concerning the Autolysis of the lens fibres in the absorption of broken and opaque cells, and concludes that the lens of the youth is more "easily liquified and absorbed because there is less of the insoluble albuminoid present and the enzymes are all active. In the aged, on the contrary, there is a much larger amount of the insoluble portion and all of the enzymes are relatively weak." While he is evidently speaking of actual rupture of the capsule and entrance of the aqueous, one can readily suppose a somewhat similar process in a case of mild contusion

where fibres may be supposed to be bruised and temporarily opaque.

*DISCUSSION.* Dr. Ewing.—The patient Dr. Charles has referred to, consulted me in May of last year with the story that the boy had cataract. I examined very carefully every portion of each lens and was doubly cautious because of the mother's being so positive in her statement. There were no pathological changes in either lens. The vision in each eye was normal. I told the mother that she must have misunderstood Dr. Charles; he had probably said that cataract might develop from such an injury. Until Dr. Charles spoke to me recently about the case, I was not aware that lens changes had actually existed.

Dr. Barek.—I have seen, as everybody has, cases of traumatic cataract where the rent in the capsule was very small and closed again; the cataractous area did not progress but cleared up by and by. Such cases are not very rare, but I have never seen a case of congenital cataract which cleared up spontaneously. I should like to add a brief remark in reference to Dr. Woodruff's case. These metastatic affections after typhoid fever, or any other general infectious disease, are usually termed "metastatic choroiditis." The choroid in such cases is not primarily affected; it may be the ciliary body but I believe that the metastases takes place primarily in the vitreous. In it most of the pathological changes are found. I possess one interesting specimen in this respect; a suppurative process in the vitreous secondary to purulent cerebrospinal meningitis, in which the choroid does not show any changes, and the ciliary body is hyperemic only. I believe that in cases of intraocular metastases after general infectious diseases, we have to deal with a direct infection of the vitreous.

Dr. Post.—Dr. Charles's case is certainly very interesting. It would seem possible that if the nutrition of the lenses were interfered with by the violence of a blow, there might be sufficient changes in the lenses to be apparent, but as the effects of the blow were recovered from, the nutrition might be re-established and the lenses thus regain their transparency. It may be something we have never seen, and we may see something tomorrow we have never seen before. This case ought to make us careful in our prognosis when we meet with a traumatic cataract where there is no other evidence of trauma in the

lens except the loss of transparency. As has been said, there are a good many cases reported where portions of the lens have become opaque and have later cleared up, and this case differs from these only in that the changes were more extensive. I think there is nothing improbable in this case.

J. D. CALHOUN, Secretary.

## WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF WEDNESDAY, NOVEMBER 8, 1911.

SAMUEL D. RISLEY, M. D., CHAIRMAN.

Dr. Posey exhibited a case showing the effect of *Blepharoplasty after severe burns*. The burns had caused almost complete union of the lower lid to the greater part of the cornea. In correcting the deformity by a blepharoplasty, he was able to protect the lower half of the ectatic cornea.

Dr. Posey showed a case of *congenital squint* in a girl of 12 years old, upon whom he had operated five years previously. Photographs taken before operation showed that there had been marked deviation of the ocular axes from paresis of the right superior and internal recti muscles. The deviations were pronounced and appeared to have been dependent upon a marked asymmetrical growth of the skull which had been induced by a prolonged birth-labor. Three operations at different times were necessary before the visual axes could be made parallel; these consisted in tenotomy of the left inferior oblique muscles and the advancement of the right superior and the internal recti muscles.

Dr. Posey exhibited also a man whose left eye was hopelessly blind and already shrinking from iridocyclitis, in consequence of a peck by the bill of a bird a few days previously. Enucleation had been advised.

Dr. Goldberg, the Pathologist, exhibited three specimens illustrating an *unusual rupture of an eyeball*. The globe had been struck with such force and in such a manner as to cause a rupture in the ciliary region through which the lens extruded and was retained beneath the conjunctiva where it became encysted. The form of the lens was so well preserved that the deformity produced resembled the presence of a new growth and caused the mistake in the diagnosis.

Dr. Chance exhibited for Dr. Schwenk a case of *monocular papilloedema* in a known syphilitic who has been treated with



salvarsan. The man, aged 27, is a yeoman in the U. S. navy, who, while on a foreign cruise late last winter, became infected, innocently he declared, and a well marked specific sore followed at the center of his upper lip. By the first of March, 1911, the secondaries were very marked. He was given injections of bichloride of mercury, grain  $1/5$ , and healing of the sore promptly followed. On April 21 an injection of Salvarsan, 0.6 gm. to 10 cc. liquid petrolatum was given into the gluteal region, and an equal dose again on May 22. These injections provoked no unusual reactions. In August another injection of the bichloride of mercury was given and potassium iodide prescribed in addition. Except for a slight reduction in the size of the submaxillary glands, the case remained without marked symptoms until about the end of September when the patient's vision became disturbed, and the naval surgeon noticed edema of the retina and nerve of the left eye. He was then sent to this hospital.

We found marked neuroretinitis, the disk as prominent as 4.50 D., yet in spite of this degree of edema the visual acuity, by repeated tests by each one in the clinic, has not been found less than 6/6. On October 3 the Wassermann reaction was strongly positive. In recent weeks the patient has been applying mercury ointment and has been taking the iodides. The papilloedema has subsided somewhat, the vision remains at 6/6; the fields are rather contracted, however, but no scotomata are present. Green, on the perimeter was called blue, but larger masses of green were accurately named.

Dr. J. Norman Risley presented a patient showing the result of *intravenous injection of Salvarsan in iritis papulosa*. The patient received the injection on September 30th and there was a complete disappearance of the papules on the iris, at the end of the sixth day. There was also marked improvement in the general health. A second injection was given on October 28th.

Dr. Posey said he had been convinced of the value of Salvarsan in the treatment of cases of uveitis due to acquired and congenital syphilis, and had already exhibited cases, before the society to demonstrate the beneficial effects in this class of cases, yet he had not had any experience with Salvarsan in affections of the optic nerve. He referred at length to a comprehensive paper by Stuelp of Mulheim, in which that author reviewed the nearly 300 papers which had already appeared in

the discussion of the treatment of eye syphilis with Salvarsan, and which included the results obtained from about 40,000 injections. Of the cases compiled, 60 were those of optic neuritis and neuroretinitis, and of this number, rapid healing followed the injections in from 4 to 14 days in 33 cases; an appreciable improvement in 15 cases from 2 to 5 weeks; an improvement followed by relapse in 3 cases, and no improvement in 9 cases was obtained even after two injections.

Stuelp concludes from his study of the literature and from his own observations, that syphilitic diseases of the eye react just as promptly to Salvarsan as to the manifestations elsewhere, and that no case of blindness following the injections had yet been recorded in either an unaffected or in a diseased eye. He accounted for the peculiar ocular and aural affections as of iritis in 15 cases, choroiditis in 3, optic neuritis in 15, palsy of eye muscles in 8, and affections of the ear in 9, which sometimes occur two or three months after the injections in cases of tertiary syphilis, to be due to a relapse of syphilis in *alio loco*, in much the same manner as has been observed not infrequently in the early stages of syphilis after treatment by mercury. Such complications usually disappear after further mercurial or salvarsan treatment. Stuelp pointed out further that nerves like the optic, auditory, and oculo-motor, which pass through narrow foramina lined with stiff connective tissue become points of election for the formation of nests of spirochetes which have the *locus therapeuticus*.

Dr. Posey said that he had been tempted to try salvarsan in several cases of optic atrophy from tabes, but had been deterred by Stuelp's caution that this form of treatment should be resorted to in tabes only, when, in the presence of irreparable degenerative lesions, and a positive Wassermann, there were evidences of active syphilitic processes; in other words, in cases of a most desperate character when all other means failed, for the salvarsan injection might make the condition worse.

Dr. Zentmayer said that he had recently had an interesting detail to relate in regard to the use of salvarsan. A man 52 years of age who had had a primary lesion last spring, and had been treated at the Philadelphia General Hospital for the early secondaries with salvarsan followed by a course of inunctions of mercury, later, in August applied at St. Agnes Hospital for the treatment of an inflamed eye and the examination

showed a most intense condylomatous iritis. The inflammation ran a severe course leaving the eye with vision reduced to light perception.

Dr. Ziegler in discussing the causation of the unexpected symptoms arising after the use of Salvarsan, stated that Professor Ehrlich had remarked to him that he believed the secondary lesions, like affections of the optic nerve, to be due to the action of toxins generated by the spirochetes.

Dr. Chance said there were points in Dr. Schwenk's case to which he would call attention. The man had had an undoubted extra genital sore which healed rapidly under the influence of mercurial injections. After this healing two injections of Salvarsan had been given but the Wassermann reaction remained positive. We looked upon the papilloedema as lenetic in origin, and the causation is well explained by Steulp's dictum as quoted by Dr. Posey. It is his own and Dr. Schwenk's practice, while not underestimating the benefit derived from the use of Salvarsan, to push the mercurials even after the period of early relief. The case presented justifies such a course as was shown by the reduction of the neuropapillary edema. Dr. Chance urged that enthusiastic users of this valuable preparation should direct their transient patients to place themselves under the care of a local physician so soon as they return to their homes. The man exhibited was infected while in a distant port; the rapidity of the healing of his ulcer might have given him a false assurance of complete cure had he not been subjected to the vigorous regimen established by the naval surgeons.

Dr. Burton Chance exhibited a colored woman with *multiple cysts of her eyelids*. She came to the hospital in July asking only for spectacles, and was averse to the suggestion that the small tumors on her lids should be removed. She stated that she had had these since her girlhood, and had no idea as to their causation, and was uncertain as to the mode of their onset, but she thought they were more numerous and had begun to increase in size in the past few years. They had never been painful, but only disfiguring. For some time the skin of the lids had become pendulous. The tumors were confined to the lower lids; on the right there were six, and on the left 4 of distinct size, while on each lid were several small elevations which were taken to be recent growths. The largest ones were

grouped at the outer angles and appeared to be connected with each other. There were no signs of irritation over the tumors; they were soft and compressible. In general appearance they reminded one of the lipomata.

After some persuasion two or three weeks later, Dr. Chance was allowed to excise a group on the left lid. These the patient believed were the first formed. The operation consisted in simple dissection. He found the tumors to be circumscribed by distinct capsules. The outermost one extended well into the tarso-orbital tissues. The inner one ruptured during the excision and from it escaped a quantity of thin milky fluid; proving the cystic character of the masses. Rather violent reaction followed entirely out of proportion to what one would expect from the removal of such circumscribed small masses. It was believed that the escaped fluid acted as an irritant. There followed chemosis and edema in the anterior portion of the orbit which gave much concern for several days. It subsided, however, with the rather pleasant result of such distinct contraction to the external tissues that the bagginess is no longer present. Sections were made of the tissues and they confirmed the supposition that they were cysts. The elements are arranged in distinct acini and they are presumed cysts of the Meibomian glands.

The Chairman thought the case an unusual one by reason of the number of cysts present and of the fact that each lower eyelid was affected in quite an exactly similar manner. He suggested the use of the galvanic current for the removal of the remaining cysts.

Dr. Chance reported the case of a *double perforation of the globe* by a splinter of iron. The patient while using hand tools was struck in his left eye by a sliver which perforated the cornea and passed through the lens but could not be attracted by a magnet. The body was located by X-Ray, however. It had pierced the posterior wall and had lodged behind in the region of the nerve. Operations were withheld with the hope that the foreign body might become innocuous. The inflammatory symptoms became dormant, but sight failed totally and there was headache. When the globe was excised the foreign body was found embedded in the nerve, and the study of the tissues disclosed that it had perforated the nerve at the border of the disc. Special attention was called to a well marked hemorrhage into the upper lid immediately following the injury, a sign

which Dr. Chance believed to indicate that a double perforation had occurred.

Dr. B. A. Thomas, by invitation spoke on the *vaccine treatment of gonorrhoea*. He said the use of the bacterins in the treatment of the ocular complications of gonorrhoea, as of conjunctivitis, uveitis and iritis, are probably not so valuable as when these arise in the course of other infections, although when they are properly administered they are distinctly useful, particularly so in iritis. In conjunctivitis their value is problematic. Bacterins should always be considered not as *specifics*, but rather as *accessories* to Nature. Improperly administered they are more potent for evil than for good. The initial dose should not be larger than 25,000,000. Autogenous bacterins are impracticable for use in these affections; the stock preparation ought to serve every purpose. No rule can be laid down to govern the size and the time of the dose. Each case is a study unto itself; a close observance of the clinical symptoms will be of greater service than the reliance upon the opsonic index; and both the local and the general reactions are to be given careful consideration. Slight fevers, headaches, malaise, loss of appetite, and an increase in the inflammatory phenomena at the site of the lesion are all of great value as danger signals, and are to be avoided when possible. Reactions more pronounced than these are distinctly harmful.

Dr. Posey said that he had been much interested in Dr. Thomas's remarks. Some years ago he had employed the anti-gonorrheal serum in a series of cases, but had not been able to satisfy himself of their value. Quite recently he had had under his care a series of five cases of gonorrheal iritis in all of which he had employed Mulford's gonorrheal vaccine, in an initial dose of 50,000,000. In three of the cases there had been an effusion into the anterior chamber about 48 hours after the injections. The effusion cleared in from 7 to 8 days, however, and left no ill effects. While he is inclined to view the effusion as a consequence of the injections, he said that he had met with it in other cases of gonorrheal iritis, when neither vaccines or sera had been employed. Torry and Rogers, also, he believed, had noted similar effusions in a number of cases of iritis in which they had employed their serum during the first experiments. He asked if Dr. Thomas thought it likely that the presence of gonococci could be excluded if no reaction was obtained after repeated injections of vaccines, reaching a total



of 500,000,000, in a man who had suffered repeatedly from attacks of what was supposed to be gonorrhœal iritis. The injections had been made while the eyes were free from inflammation and when there were no active signs of gonorrhœal or other infection in the system.

As a result of his own observation, Dr. Posey said he is still somewhat skeptical regarding the value of the vaccines in gonorrhœal iritis, and he stated that he would hesitate to employ them in a case progressing favorably under the usual form of treatment, for fear of exciting an effusion into the anterior chamber and thereby needlessly protracting the course of healing.

Dr. Ziegler said that he too had noticed exudations into the aqueous a short time after bacterial injections had been given, but he could not look upon these as consequence of the injection but rather as a manifestation of the disease for which the injection had been given. On the contrary he recalled a case of exudative choroiditis and another of vitreous opacities in which effusions had disappeared after the use of bacterins. In this class of cases he would pursue the practice he had recommended two or three years ago—namely the injection into the eyeball of a solution containing formalin, cocaine and hyoscine.

Dr. Becker, of Sunbury, spoke of the case of a man who had had chronic gonorrhœa for about two years and was under treatment for rheumatic keratitis, to whom an injection of 50,000,000 bacteria was given. 32 hours after the injection "gummy" iritis set in and lasted for 10 days. Recovery from the keratitis followed in 3 weeks. The right eye has always been attacked, except in June, 1911, when the left was the seat of the disease. The patient has chronic asthma, which his family physician thinks is due to a rheumatic diathesis. Becker did not attribute the gummy condition to the injection, indeed he did not believe that it had anything to do with it, but he was inclined to regard it as a coincidence, rather than to have been caused by the injection. He was struck by the fact that when the iris became involved previously, it was always of a rheumatic nature, and had always responded to anti-rheumatic remedies, together with boric acid, atropine and dionin locally.

Dr. Conrad Berens gave an account of his personal experience in the *treatment of diseases of the Accessory Sinuses*, covering a period of over 25 years, and was drawn from his obser-

vation of at least forty thousand patients of whom ten thousand were in private practice. From this rather large number of individuals only forty six were operated upon for diseases of the accessory sinuses and of these 38 were males and eight females, whose ages ranged from 16 to 71. Ten cases were of the frontal sinus; nine of the ethmoid and antrum; six of the ethmoid; five of the antrum and ethmoid; of the antrum 7, and of the sphenoid 2. He had rarely seen the diseases in their acute stages, because such cases are usually treated for headache by the family physician, whose only warning of the real condition is an offensive discharge, or the perforation of the cavity and the establishment of a suppurating sinus. He has rarely seen the alarming changes in the fields of vision, that some have reported, although subjective phenomena were invariably noted. In every case there were marked changes in the fundus on the side of the diseased sinus and not infrequently on both sides.

For transilluminating the sinuses he uses a three candle-power bulb covered with cylinders of meerschaum; one cylinder is open at its distal end, another is fenestrated on one side.

In frontal sinusitis he resorts to the external operation, but drains through the nasal chamber when the ethmoids alone are involved. The vestibulum affords ample room for a radical operation, but when the ethmoids and the antrum are involved he performs the external operation, and drains through the nose and through the alveolar region, even at the sacrifice of a tooth or two. In antral disease he uses the alveolar region only, but in sphenoidal disease he performs the radical operation. Success in operations upon the accessory sinuses depends upon an intimate knowledge of the anatomy of the parts, a perfect technique and a quick appreciation of the anomalies that are so commonly found.

The after-treatment demands perfect drainage. In some cases Dr. Berens has used a horizontal tube through both frontals with a nasal tube on both sides. In other cases he inserts a tube through the nose and a second from the lower margin of the orbit to and through the alveolar spaces. He employs as drainage tubes No. 16, French, soft catheters threaded with a double strand of No. 14 to 16 plaited silk. As the discharges cease, the tube is cut away, one strand of the silk is withdrawn and then, if the wound acts kindly, the remaining strand is

removed, and the healing soon follows. Hemorrhage during the operation is controlled by frequent douching with hydrogen dioxide, and by swabbing with adrenalin. The external wounds are closed with black silk sutures so placed as to bring the lips of the wound into close contact with the drainage tube.

In the treatment of the antrum he secures drainage through the alveolar process. Opposition to this procedure, Dr. Berens believes, arises from the fact that most operators try to secure drainage by inserting a tube closed by a plug during eating. To overcome the difficulties he had devised a rubber dental plate consisting of teeth and a plug long enough to reach well into the antrum. This appliance insures drainage and at the same time secures perfect mastication without forcing food into the cavity. As the case progresses the obturator may be filed down until finally nothing remains but the small rubber plate bearing the artificial teeth.

Dr. Ziegler exhibited several patients from his clinic, among them were two cases of Ectropion, one of which was treated by sliding flaps by the Fricke method; the other by the galvanopunctures devised by Dr. Ziegler; a case of tubercular cyclokeratitis; and another showing the beneficial results of cataract extraction in a case of tubercular cyclochoroiditis. Two cases of glaucoma, in one of which he had operated by a modification of the Lagrange operation; and in the other by sclerotomy as modified by Treacher Collins.

BURTON CHANCE, Secretary.

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the Society was held at the rooms of the Medical Society, Chandos Street, Cavendish Square, on Thursday, July 13th, 1911, Dr. Ernest Clarke, Vice-President, in the chair.

Mr. J. B. Lawford showed a case of sub-retinal new growth of doubtful nature, in a healthy lady, aged 77. Mr. Holmes Spicer believed it was a case of central senile degeneration. Such instances were not common in old people. In a similar case he believed the condition was inflammatory, the deeper layers of the choroid being exposed. Mr. Nettleship believed that if such cases could be watched throughout their history there would be found to be a deposit in a considerable proportion of them, and that the deposit disappeared and left a corresponding area of

atrophic choroid. Such cases should be carefully watched. Mr. Lawford replied, expressing the view that the opinion given was favoured by the fact that since March 18th, there had been no increase in the size of the growth, and the only portion of the choroid in which there was some pigmentary change was the lower and inner part.

Mr. Arnold Lawson showed a case of medullated nerve fibres near the macula and apart from the optic papilla. Mr. Frank Moxon showed a case of hole at the macula.

Mr. G. W. Roll showed a case with a clinical appearance simulating growth in the eyeball, and Mr. Greeves read notes on a section of tumor of the ciliary body. Mr. Teacher Collins agreed with Mr. Greeves' conclusion, but from the position occupied by the cells it was impossible to say exactly what the growth was.

Mr. R. R. Cruise showed a case of central retinal detachment, which had been shown  $3\frac{1}{2}$  months previously. He also showed a case of exostosis of orbit after operation, and the chairman congratulated him on the result.

Mr. W. H. McMullen showed a case of retinitis circinata, and Mr. Hanson and Mr. Fisher exhibited a case of gummatous tarsitis. In spite of injecting "606," Wassermann reaction was positive. Mr. Dimsdale showed a case of retinitis of doubtful origin.

Mr. Arnold Lawson read a paper entitled "Two Cases of Metastatic Ocular Inflammation in association with Bacillus Coli Toxaemia." Mr. Lawson gave the following particulars of the cases:

(1) This was a case of a young lady, age 21, who suffered from a very intense optic neuritis of one eye. The inflammation was the most severe example of monolateral papillitis that the writer has ever encountered. The general health of the patient was not obviously affected, and all the organs were quite healthy. Syphilis could positively be excluded, and there was no evidence of tubercle, either in the patient herself or in the family history. The housemaid in the patient's house had, however, noticed for some months that the bedroom in the morning always smelt abominably, and it was discovered that this odor was due to the offensive condition of the urine, which was found to be swarming with Bacillus Coli. Full doses of Helmitol were prescribed, which effected rapid improvement, and, consecutive with the satisfactory change in the urine, the papillitis also subsided rapidly. Mercury by the mouth and by inunction was also

given, but mercurial treatment was not well borne, so that after about a fortnight all internal administration of mercury was stopped, and the treatment then consisted of a little mercurial inunction at night, combined with full doses of Helmitol. Expert advice was sought with regard to the preparation of a vaccine, but as improvement had set in so rapidly after the commencement of the Helmitol, it was deemed unnecessary, especially as at that time (3 years ago) Coli vaccines had little determined value. The progress of the case was extremely satisfactory. The patient recovered with 6/5 vision and a good visual field, excepting that a somewhat large sector of the field at one spot was obliterated, elsewhere the limits of the field were full and normal. Helmitol was continued for about three months, and at the end of this time, a specimen of urine submitted to the microscope contained no *Bacillus Coli*.

(2) The patient was a woman aged 36, afflicted with severe chronic rheumatoid arthritis, and subject to recurrent attacks of vesicular keratitis, which usually cleared up under ordinary straightforward treatment. Some months ago she was taken into Moorfields' Hospital by the writer on account of the unusual obstinacy of one of these attacks. She then speedily recovered, but just before it was determined to send the patient out of hospital, another bad attack set in. The little corneal ulcers in one eye were then scraped for bacterial investigation under due aseptic precautions, but within a few hours of the scraping a very violent muco-purulent discharge commenced in this eye, rapidly followed by an infiltration of the cornea with dense exudate. This infiltration spread in spite of all treatment, and so quickly that four days later the whole cornea was involved, and stained freely to fluoresceine. About this time the other eye commenced to exhibit a similar train of symptoms. A profuse muco-purulent discharge was also rapidly followed by ulceration and infiltration of the cornea and five days later, corresponding to the ninth day of the injection of the first eye, the condition of the latter seemed hopeless and that of the other eye was almost as bad. Two careful bacteriological examinations of the conjunctival discharge revealed nothing but the presence of the *Bacillus Xerosis*. There was no sign of gonorrhoea about the patient and no history of any previous attack of this disease. The urine was, however, offensive and swarming with various organisms. On the fifth day of the primary infection a mixed vaccine of streptococcus B. Catarrhalis



and *Gonococcus* was tried without effect, and on the seventh day as matters were getting desperate, the writer suggested an examination of the urine for *B. Coli*. This organism was found present in vast numbers, and a vaccine of *B. Coli* was then prepared and injected on the ninth day. Urotropine in full doses was also ordered. A very rapid improvement at once followed the injection of the *B. Coli* vaccine. The conjunctival discharge rapidly decreased, and the corneae began to clear up. Six days later the corneae were almost covered by epithelium and the infiltration was already far less dense. From this time, in short, the patient made rapid strides to complete recovery, so that seven weeks after the onset of the inflammation the vision was as good as when the patient first came into the hospital. Altogether, five injections of the vaccine were given, commencing with 5 millions, the last two injections each containing 100 millions. The bacilluria rapidly improved after the first injection. These cases were both very similar in many points, remarkable features being the intense virulence of the inflammation in each case, the exceptional rapidity with which the inflammation subsided, and the extreme completeness of the recovery. The rapid convalescence of the ocular trouble coincided with the improvement in the bacilluria in both cases, and the association of the two cannot reasonably be doubted. The author believed that these two cases were the first recorded examples of ocular inflammation associated with *Bacillus Coli* toxæmia, but it was probable, he said, that the association was not so very rare, but that it had been overlooked in the past.

The Chairman considered that the paper was one of the most important which had been read before the Society that Session. Probably ophthalmologists had constantly missed such infections because they had not employed ordinary methods of induction. Mr. W. M. Beaumont endorsed the Chairman's remarks, and added that the injections apparently cured the eyes but not the urine. Mr. Mayou asked whether the organism was found in the discharge from the eye. Mr. Lawson, in reply, said the continued presence of the bacilli in the urine might have been expected, as the organism was frequently found in healthy urine. The first patient was a refined girl of good family, in whose urine the organism was swarming. The body could stand the presence of the coli bacillus without harm, unless there was a considerable invasion. The organism was not found in the discharge from the eye.

C. D. MARSHALL, Secretary.

## EDITORIAL

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### SPECIAL TEACHING IN OPHTHALMOLOGY.

At the meeting of the American Medical Association at Los Angeles, the section on Ophthalmology, and subsequently the House of Delegates of the Association, recommended that every medical college possessed of the proper facilities should establish a systematic course of training for those intending to engage in ophthalmic practice.

Such a course has been given for two years at the University of Oxford, has since been established in the University of Liverpool, and is being arranged to begin next summer in the University of Colorado at Denver. It is not expected that such a course can include much that has not been taught heretofore, in one way or another, to those who were bent upon learning all they could about this special branch of medical practice. But in the past such teaching has been scattered, fragmentary and difficult to come at. Bringing it together in a definite curriculum will make it much easier for the student to find what he really wants.

At the same time, the recognition of a particular course of study, as the best preparation for ophthalmic practice, will give a standard by which the claims of self-announced specialists will be judged. It will also bring clearly before the general medical profession the fact that there is a definite mass of knowledge, a certain efficiency in methods and manipulations which alone fit the physician to enter upon ophthalmic practice. The recognition of systematic ophthalmic teaching will bring about the recognition of its results in fitness for practice. Those who have properly prepared themselves will in future cease to be confused with others; who merely reach out for what they conceive to be the superior rewards of special practice, without more than the most superficial preparation, and often in complete ignorance of the current literature of their specialty. This discrimination between the fit and the unfit specialists on the part of the profession, we may hope will react upon the laity in a way that will bring greater respect both for qualified specialists and for the medical profession at large.

## NEWS ITEMS.

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. Possek of Graz has been made a professor of ophthalmology.

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Dr. A. Synlislawski, professor of ophthalmology in Lemberg, is dead.

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Prof. Dr. A. von Hippel of Gottingen recently celebrated his seventieth birthday.

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Dr. D. Forest Harbridge succeeds Dr. McCool as secretary of the Polyclinic Ophthalmic Society of Philadelphia.

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Prof. Gasparini of Sienna, Italy, known for his work on the pneumococcal eye disease, is dead.

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Prof. Dr. Golovin of Odessa has been made ordinarius professor of ophthalmology in Moscow.

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Dr. M. Marquez has been appointed professor of ophthalmology in the University of Madrid, Spain.

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The following have qualified in ophthalmology in Italy: Dr. Spoto in Palermo, Dr. Cecchetto in Parma, and Dr. Mani in Turin.

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Prof. Pava of Sassari, Italy, is dead. Prof. Pava was one of the oldest of Italian oculists and was noted for his advocacy of corneal tattooing.

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Dr. George F. Keiper of La Fayette, Ind., has been elected president of the Tippecanoe County Medical Society.

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Dr. Charles Trow of Toronto, Canada, died recently, aged 55 years. He was a member of the Ontario Medical Council and associate professor of ophthalmology and otology in the Toronto University.

Mr. George Cowell of the staff of the Royal Westminster Ophthalmic Hospital, London, has been made provost of the Guild of St. Luke.

Dr. James McCall of Terre Haute, Ind., has been appointed to the department of diseases of the eye, ear, nose and throat in the Rose dispensary.

Mr. W. A. Brailey, consulting ophthalmic surgeon to Guy's Hospital, London, has been made an honorary Fellow of Downing College, Cambridge.

Dr. Francis Valk has retired from active work at the New York Post-Graduate Hospital after twenty-five years' service. Dr. Valk has been made professor emeritus of ophthalmology.

Dr. A. B. Middleton of Pontiac, Ill., was recently elected secretary of the Tri-State Medical Society of Illinois, Iowa and Missouri.

Dr. Walter B. Weidler recently was appointed assistant surgeon on the staff of the Manhattan Eye and Ear Hospital of New York City.

Dr. W. F. Hoffman of Seattle, Wash., for a number of years with Dr. J. A. MacKinnon, has left for a course of post graduate work in London and Vienna.

Dr. Edward A. Willis has been placed on the staff of the Indianapolis City Hospital as alternate in ophthalmology.

Dr. Adolph Blitz, an ophthalmologist of Boise, Idaho, and a Civil War veteran, died in that city November 19, aged 66 years.

The very complete and valuable medical library of the late Dr. Alvin A. Hubbell of Buffalo, has been donated by Mrs. Hubbell to the Grosvenor library, Buffalo.

Dr. Vincenz Fukala died in Vienna on October 27, aged 65 years. He was known chiefly by his operation for lens removal in high myopia.

# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

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No. 2, New Series

## ORIGINAL ARTICLES.

### SMALL ROUND-CELL MYO-SARCOMA OF ORBIT WITH EXTENSION INTO EYEBALL.

WM. CAMPBELL POSEY, M. D.

Philadelphia, Pa.

E. T. B., female, æt 15, was brought to my service at the Wills Hospital in January, 1910, on account of an unusual prominence of her right eye. Upon inquiry it was elicited that the proptosis was first noted when the child was less than a year old, the swelling of the tissues of the orbit and the prominence of the eyeball having appeared without apparent cause. Dr. J. Thomson West, of Glasgow, Scotland, who had the child under his care at that time, has recently written me as follows:

"When I first saw the child it was suffering from symptoms and signs which appeared to indicate an acute inflammatory condition involving the right orbit. There was a high temperature and general disturbance and well marked proptosis, the eye being pushed forward, downward and inward. These symptoms lasted for a few days, after which the acute character passed off, and as I was uncertain of the real nature of the condition, I recommended the mother to take the child to the Glasgow Eye Infirmary. There it was seen about the middle of May, 1896, and the entry in the Journal is as follows:

" 'E. T. B., age 14 months, has considerable exophthalmos of right eye. So far as can be felt, there is no tumor, although the eye has distinct resistance to pressure. Good view of L. fundus, no neuritis.' On the last occasion on which I saw the child the proptosis had practically disappeared."

The parents' statement also substantiated this account, for they asserted that after the swelling of the lids and the prominence of the eye had persisted for some months, they slowly subsided, without signs of abscess formation or discharge of pus, and that during fourteen years succeeding the child had presented no ocular symptoms beyond a slight staring expression



in the affected eye, which was brought on by exertion or extreme fatigue. Two months before the child was brought to the Wills Hospital, however, the prominence of the eye-ball reappeared without apparent cause, and as the degree of the protrusion of the globe continued to increase and as the patient complained



Fig. 1.- Photograph showing pronounced proptosis of right eye.

more and more that the region of the eye felt distended and full, and as the sight was becoming more and more dimmed, the parents decided to seek medical aid.

The family and personal history, so far as systemic disease was concerned, was negative. The father and mother are both living and well. The patient is the second child, an older sister having died at 7 years of age with scarlet fever. The mother asserted that the labor attending the birth of the child had been easy and that the baby had been without particular ailment.

As shown by the accompanying photographs (Fig. 1), which were taken shortly after admission to the hospital, the right eye was driven directly forwards. All the movements of the globe

were much restricted. On palpation, the orbital rim appeared unaffected, and while no mass could be outlined in the orbit, the apex of this cavity appeared to be filled in with solid material, as it was impossible to replace the eyeball by pressure. Ophthalmoscopic examination showed clear media, and the signs of stasis



Fig. 1a.—Profile view. Engorgement of the bulbar conjunctiva may be seen in the outer canthus.

in the papillomacular region. There was very marked haze and swelling of the retina in the macula, tortuosity of the retinal vessels and marked dilatation of the veins. There were no hemorrhages. The periphery of the fundus was uninvolved. The left eye was unaffected. Right vision equalled 3/60, left vision 5/5. The right field was concentrically contracted, but no scotomata could be outlined. The left field was normal. The child appeared somewhat anaemic, but there were no signs of glandular involvement and she said that with the exception of the pain in her eye she felt quite well. She was at once admitted as an in-patient for further study and probable operation, since it seemed likely that the orbit was the seat of some kind of a neoplasm.

During the few days which intervened before the operation which is about to be described, the proptosis became even more pronounced and the veins of the conjunctiva very much congested. Bulbar chemosis also appeared, being especially pronounced at the outer canthus. The changes in the eye-ground likewise became more pronounced, indicating a progression in the stasis of the circulation at the back of the eye, and vision sank to 2/60. In view of the apparent rapidly progressive nature of the neoplasm and as Dr. F. R. Packard had excluded the possibility of any sinus involvement, an operation was decided upon, and as all the indication pointed to the growth occupying the apex of the orbit, it was decided best to attempt to remove the neoplasm by the procedure of Krönlein.

The patient was accordingly etherized and with the assistance of my colleague, Dr. Zentmayer, the orbit was opened by this method and ready access given to the retrobulbar region. After careful dissection of the tissues about the nerve, an irregular mass was felt below this structure, which seemed to consist of a number of small nodular swellings, each the size of an almond, extending from the apex of the orbit along its floor to a point corresponding to the equator of the eyeball. These nodular masses seemed to have no connection with the eyeball or optic nerve, but were embedded in the tissues of the inferior portion of the orbit.

Judging the mass to be sarcomatous and fearing that the eyeball might also be involved in the malignant process, the globe was enucleated and the greater part of the contents of the orbit eviscerated. Healing was uneventful and after a few months the orbit was partially filled with apparently healthy tissue. Twenty-one months have now elapsed since the operation and there has been no evidence of recurrence. An artificial eye can be worn, though the implantation of two gold balls, one upon the floor, the other in the roof of the orbit, was necessitated before the shell could be held in proper position.

The specimens were submitted to Dr. Goldberg, the pathologist of the hospital, for examination, and his report is as follows:

"As far as can be ascertained from the mass of tissue furnished, the growth submitted for examination consists of a series of four cylindrical portions, all of which are of about the same size, i. e., 11x7 mm. x 1 cm., and present the same characteristics. These small masses were well encapsulated, of a pale pinkish brown color and of a rather firm and elastic consistency. They

were surrounded by fibro-cicatricial tissue, cellular tissue and fat, but no trace of other solid or organized masses could be differentiated.

"After macroscopic inspection, the masses were sectioned longitudinally and transversely, and stained with hamatoxylin and eosin, with Van Gieson's stain and with other special stains for muscular tissue. Under the microscope the masses were found to be composed of striated muscle fibres enclosed within a

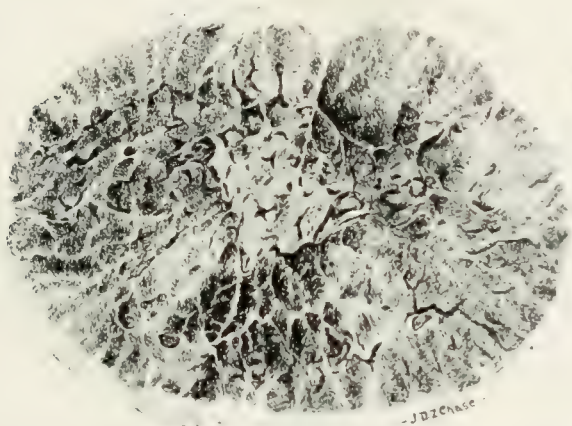


Fig. 11.—Transverse section through large orbital muscle bundle.

sarcolemma (Fig. 2). They appeared to be more or less inflammatory in character, the cells showing proliferative changes, while the vessels gave evidence of a perivascularitis. The capsules were composed of fibrous connective tissue. This, together with a polymorphonuclear infiltration elsewhere into the orbit first suggested an inflammatory tumor of the mixed type, and a tentative diagnosis was made of fibromyoma. Further examination of the orbital contents, however, revealed large masses of granulation tissue with small, round cell infiltrates and large mononuclear leucocytes and fibrous hyperplasia. One small area contained what are in all probability small round sarcoma cells. These cells were difficult to differentiate, owing to the abundant new connective tissue cell proliferation, and I am still somewhat in doubt as to their morphology. I am, however, inclined to regard them as sarcomatous, not only upon their appearance and that of their blood vessels, but also by the general historical character of the growth in its connection with the changes which were found in the eyeball.

"Macroscopically the eyeball is normal in appearance, and a horizontal meridional section reveals nothing but a slight swelling of the nerve head. Microscopically, the changes are striking and unusual, chief interest centering in a dense mass of non-pigmented spindle cells, which followed the course of a vortex vein, completely filling its lumen (Fig. 3). Studied through a number of sections, this mass is seen to extend along the vein until the latter reaches the external layers of the sclera, when the vessel bends at a right angle and apparently empties its contents into the orbit. As the vessel makes this turn, its

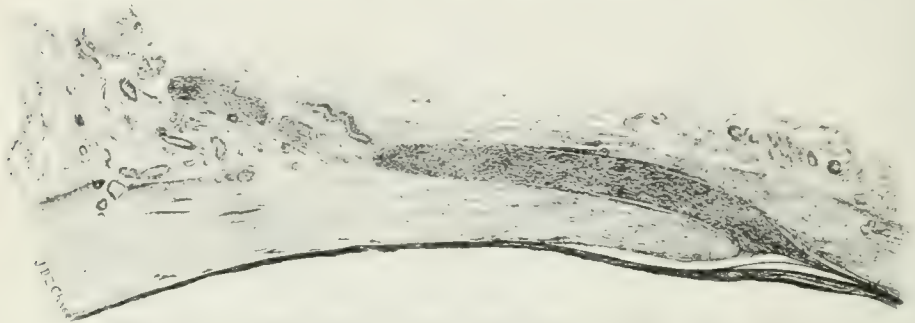


FIG. III. Longitudinal section through vortex vein showing arrangement of spindle sarcoma cells in the vessel.

longitudinal fibres are exposed, giving the only opportunity afforded by the sections of studying its structure, as the walls elsewhere seem to have been destroyed, probably by the result of pressure changes. The internal surface of the vessels was covered by pigment cells from the choroid, which proved to be chromatophores from the choroidal stroma and not hematogenous as was at first thought.

"The mass occupying the lumen of the vein is about fifty microns in thickness and is composed entirely of spindle sarcoma cells. With the exception of its covering already described, and its internal extremity which terminates in a dense, deeply pigmented point continuous with the external layers of the choroid, it is non-pigmented.

"The neoplastic mass seems to end abruptly at this deeply pigmented point just referred to, but around this site a proliferation of the choroidal stroma pigment cells has occurred, which is out of proportion to the general pigmentation elsewhere in that membrane.

"That part of the ciliary body which is contiguous with the



diseased area in the choroid was enlarged; this was found to be due to an increase in the cells of the muscle layer (Fig. 4). These cells showed active karyomitotic changes throughout. While the vessels of the ciliary body are structurally perfect, and their lymph sheaths uninvolved, all—both anteriorly and posteriorly—are filled with sarcomatous cells, the pathological



Fig. IV.—Transverse section through ciliary body showing proliferation of cells in the muscle layer and the presence of spindle sarcoma cells in the anterior vessels. Note the similarity of these last named cells, the muscle cells and the sarcoma cells filling the vein.

process evoking these being evidently of an intra-endothelial nature.

"All other parts of the eye, with the exception of an oedema into the nerve fibre layers of the retina in the region of the macula, appeared to be unaffected.

"Upon account of its relation to, and constant presence in the entire blood vessel system, both venous and arterial, I am inclined to view the growth as of blood vessel origin, and believe that it should be classed histologically among the endothelial neoplasms, i. e., clinically, those of the flat sarcoma type. I am led to suspect that the growth has some kind of intimate connection with the muscle elements, upon account of the similarity in the proliferative changes in the muscle layer of the ciliary body and the new formed muscle tissue in the orbit. The cells in both of these regions are almost identical with those found in the

large vein, but whether they are originally modified sarcoma cells or transitional muscle cells it is impossible to say. I should hesitate to assert positively that the intraocular growth found its origin in the large muscle bundles in the orbit, since it is not clear that these may not be purely of an inflammatory nature. My own inclination, however, is to view the orbital mass as sarcomatous, and I think the inflammatory changes which were found there are not more than one would expect to see in a growing neoplasm. Perhaps the small round sarcoma cells may be an early offshoot from the parent growth, changing their type to suit their ultimate environment, which is not an unusual occurrence in the life history of growths.

"I would classify the growth among the myo-sarcomata, the tumor originating as an endothelial sarcoma in the blood vessels of the orbit, the cells slowly following their course and showing a special selection for muscle tissue. This interpretation of the nature of the growth explains, I think, its slow progress and the preservation of vision until the time of operation. Had the tumor originated in the blood vessels of the eyeball, as is usual, vision certainly would have been destroyed long before the orbital mass reached proportions large enough to attract attention. The slow growth of the tumor is, I believe, responsible for the inflammatory changes in the orbital tissues, and is an expression of the manner in which Nature tries to keep apace with her regenerative process. This is indicated by the proliferating connective tissue and the character of the leucocytes. Had the progress of the neoplasm been more rapid, everything would have given way before it, and the usual clinical picture of such cases would have manifested itself."

The pathological findings being of such an unusual nature, Dr. Goldberg and I thought it would be well to submit the sections of the eyeball and orbital tissue to Prof. Allen J. Smith for his opinion. His report is as follows:

"Apparently surrounding the anterior part of the ball beneath the ciliary body in sub-choroidal position, and extending backwards a short way over the ciliary body, there is a flattened growth which at one especial position is penetrating through the sclera apparently along the line of one of the vortical vessels. This is made up of flattened cells, which in section look like long and delicate spindles and are interpreted by me, tentatively, as probably of endothelial type. Apparently no penetration of the growth is extending in the perivascular lymph spaces and the

outer part of the scleral wall. It does not form a massive growth and mechanically could not, in its present size, have given origin to any special ocular symptoms, although I should have expected a glaucoma eventually to have resulted. I do not believe that this has had an extraocular origin, since I can not correlate it with any of the tissue that was shown me from the orbit or on the outside of the globe. I would not have thought of its being of very long duration because of its small size and incomplete distribution, but I can not help asking myself the question whether perhaps this was not primary, of very slow development and possibly in some unknown way basic to the extraocular inflammation. I think it should be ranked among the sarcomata of the endotheliomatous type. I am inclined to look upon the orbital sections as rather of a chronic inflammatory type, but speak with some uncertainty upon account of the intraocular findings."

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## AN UNUSUAL CASE OF STEEL INJURY.

BY FRANK ALLPORT, M. D.

CHICAGO, ILL.

Two years ago A. B., aged 17, was hit in the *right* eye by a piece of steel which perforated the cornea and lens, but did not remain in the eye. A cataract was produced which gradually absorbed, leaving him with a vision of 20/20 with correction.

November 27, 1911, while striking two hammers together he was again struck, this time in the *left* eye, by a piece of flying steel, which perforated the upper eye-lid, cornea, iris and lens. I saw him at 8 p. m. November 28th, at St. Luke's hospital. It was too late for even an X-ray picture, and I feared to wait until morning for fear of inviting infection. I therefore approached the giant magnet to the eye but obtained no response. I then opened the sclera, between the external and inferior recti muscles and used the magnet freely, but with no result. The conjunctiva was sutured. There was no reaction, but desiring to keep him quiet for a few days, an X-ray picture was not taken at the hospital until December 3rd. It showed the steel centrally located, and either in sclera, or back of it. To determine its exact location other pictures were taken by Dr. O'Donnell and Dr. Reichmann, and the steel was located almost exactly in the center of the field and between 24 m.m. and 25 m.m. from the surface of the cornea. A normal eye being about

24 1/2 mm. long it was hard to know whether the steel was in the sclera or back of it, for, of course, I knew it was not loose in the vitreous chamber, as it did not respond to the magnet, even by pain. I also had to take into consideration the somewhat undeveloped eye, owing to the boy's age, and the fact that the eye was not as tense as normal, owing to some slight loss of vitreous at the time of the accident, and at my operation. It seemed therefore that the steel must be in the fatty tissue back



Picture showing the two impressions of the same piece of steel  
Made by Dr. Reichman

of the eyeball, but this satisfying condition was somewhat rudely shattered by the last picture of Dr. Reichmann, who used the instrument and method of Dr. R. Furstenan of Berlin. He took what might be termed a moving picture, by having the patient look straight ahead for a few moments, and then, without changing the plate, having him look to one side. Two pictures of the steel were found on this plate instead of one, thus conclusively proving that the steel moved with the eye. The steel might therefore be in the sclera, or just back of the eye, but at-

tached to it by strands of tissue, sufficiently short and tight to compel movement with each movement of the eye. Considering all the circumstances, it seemed as if the steel was in the socket, and yet its movement as shown in the X-ray picture cast a doubt on this conclusion. About this time the eye, which had previously looked remarkably well, began to show unmistakable evidences of trouble. The tension rapidly diminished, pain on pressure developed, and the ciliary injection became more and more marked—it was certain that something must be done.

December 11th, I determined to search the socket for the steel, and therefore freely incised the conjunctiva over the external rectus, and after passing a suture through it, (in order to be able to re-attach it to the eyeball if found desirable) cut it off and thoroughly explored the socket with the magnet and carefully and effectively inserted between the conjunctiva, capsule, etc., and the sclera of the eyeball. No reaction was obtained, but the eyeball was found to be much softer than I had supposed. I then determined to make a last search for the steel in the eyeball and therefore opened the sclera in its extreme posterior portion, and used the magnet in the opening, with no result. I sutured the opening to prevent collapse of the eyeball during enucleation, and then removed the eyeball. The steel had passed completely through the eyeball and was found in a small mass of exudate which was attached to the eyeball. The eyeball was opened and a beginning purulent ophthalmitis was found at the ciliary region. A red exudate mass was found at about the macula, where the steel had perforated the posterior portion of the eyeball. My scleral opening, made November 28th, was healed so perfectly that it was difficult to locate its situation. There was no congestion at this point. There was no detached retina anywhere.

The case is interesting as showing the strange fatality of a steel injury in *both* eyes. It is also interesting as showing the difficulty of locating steel, even by skillful radiographs, accurate measurements and "moving" pictures. It also demonstrates how little damage may be expected from a perfectly executed scleral opening.

I have had associated with me in the case, Dr. Ellwood of Menominee, Mich., Dr. Wescott of Chicago, Dr. Crowell of Iron Mountain, Mich., and Dr. Rochester of Chicago, to whom I wish to render thanks for counsel and assistance.



**KERATOCONUS—REPORT OF A CASE.**

BY C. W. LEFEVER, M. D.

PHILADELPHIA.

J. E. B., white, male, aged 50 years.

There is no history of a similar condition of the eyes in a near blood relation.

Excepting some of the minor illnesses of childhood, the patient's only illness of any importance was an attack of rheumatism in the ankles six years ago, which necessitated the use of crutches for ten weeks. From this he made a good recovery. Since early manhood until the age of 40 he used alcohol to excess. This continued over a period of about twenty years, during which he was not incapacitated for his regular duties, but drank heavily after work and during the evenings. Since that time he has been temperate in his habits. At the age of 42 he was accepted as a regular risk by the New York Life Insurance Company.

His occupation has been of a clerical character most of the time, although he worked as a finisher on furniture for a few years at the beginning of his career.

Until about thirty years of age he did not wear glasses and had no trouble with his eyes and thinks he saw as well as other people. From that time his vision failed and glasses proved uniformly unsatisfactory, causing him to seek relief from many opticians and oculists. He states positively, however, that until about the age of forty he saw fairly well without glasses and that very poor vision dates back only that far.

The date of his first visit to me was July 17, 1907. An investigation of his previous glassings reveals the following: On September 6, 1899, the following were his first glasses, R.E.—1.00 Cyl. ax. 90. L.E.—1.75 Cyl. ax. 90. This was worn two years when it became unsatisfactory and he was reglassed as follows: R.E.—2.00 Cyl. ax. 90. L.E.—2.50 Cyl. ax. 90. The next change was June 14, 1904, when he took the following: R.E.—3.50 Cyl. ax. 90. L.E.—3.25 Cyl. ax. 90. In May, 1905, he was given R.E. +1.00 Sph. 7.75 Cyl. ax. 75. L.E. +1.00 Sph.=—5.75 Cyl. ax. 90. He was then 44 years of age and +1.50 Sph. was added on each eye for near use. On May 12, 1906, the right eye was unchanged, but the left required +3.00 Sph.=—8.25 Cyl. ax. 105. In October of the same year both lenses were again changed. R. E. +2.00 Sph.= 12.00

Cyl. ax. 75. L.E.  $+3.00$  Sph. 11.00 Cyl. ax. 95. One month later  $+3.00$  Sph. was added on each eye for near use.

When I saw him in July, 1907, I could make no improvement on the right eye over what he was already wearing, which gave him 20/40 vision. On the left eye I ordered  $+2.00$  Sph. =  $-12.00$  Cyl. ax. 100. With  $+3.50$  Sph. added for near he was able to act as timekeeper at one of the popular boxing rings, which required him to see the "second" hand on his watch. He had been following this occupation, during the evenings, for some years with the previous glassings already noted. Four months later I changed the right lens to  $+4.00$  Sph. =  $-12.00$  Cyl. ax. 70.

At that time his vision without glasses amounted to counting fingers at thirty inches. He found that his vision was greatly improved if the glasses were tilted with the tops toward the brow, allowing him to look obliquely through the lens, and I suspected that the improvement was due to prismatic effect. I tried to get the same result with prisms, however, but was unable to do so. I have not tried parabolic lenses. One year later I was able to give him 20/20 vision in the left eye with the following lens:  $-17.00$  Sph. =  $+32.00$  Cyl. ax. 10. This removed his desire to tilt the lens and gave him practically normal vision. Since that time he has required no change, his vision remaining normal in the left eye with 20/40 in the right. I have never been able with any combination to improve the right eye below 20/40.

The etiology in this case presents the usual negative elements. He never suffered from any inflammatory disturbance of either eye. Excepting the conus, which occupies a lower site than usual, there are no visible changes in the cornea or any other structure of the eyes. With the exception of alcoholism and rheumatism, his general health has been good, as is attested to during recent years by the fact that a prominent life insurance company accepted his risk seven years ago. He married at the age of 43 and has one healthy child, now six years of age. His urinalyses were entirely negative.

The time of onset is later than usual, being at about the age of 30. The most common age of onset for keratoconus is believed to be during childhood or during early adult life. There has at no examination been a discernible rise of tension in either eye. The media are clear and so far as they could be studied the fundi show no gross changes.

Just what pathologic changes have occurred in these corneas it is impossible to say. That the cornea is thin is shown by the ease with which it is indented by pressure, either by means of the lower lid or under cocaine, by the oiled finger. By the latter method the cornea feels distinctly soft over the cone. This thinning might occur without actual rupture of continuity in any of the structures except the endothelium of Descemet's membrane, but unless there was a proliferation of the endothelial cells so great stretching must result either in actual rupture or in great widening of the spaces at the points of juncture of the cells, which would probably destroy their vitality.

The distended area of the cornea is not conical in shape, but more nearly resembles that of a hanging drop of some viscid liquid. The point of greatest projection is considerably below the center of the cornea. This is generally so to a less extent and is perhaps due to the fact that this point in the cornea occupies the center of the palpebral fissure and is without the support that the lids furnish where they cover it.

From the upper limbus to the center of the cornea the refraction is hyperopic, that is the cornea is flatter than normal, while from the center to the lower limbus it is very myopic. That the refraction is much greater in the horizontal axis is shown by the minus correction required in this meridian. The correction giving best vision does not, of course, represent the greatest abnormality of curvature, since the visual axis enters the cornea through the upper side of the cone rather than through its apex. I have had him use a myotic constantly to limit the area of cornea through which rays might pass and enter the pupil and if this is omitted the larger pupillary space permits the visual axis to move slightly down and in during near fixation and he is unable to read, but if the pupil is kept small his near vision, with +3.00 Sph. added, is normal. This, it seems to me, is the explanation of the benefit derived from the use of myotics in these cases quite as much as by their lessened aberration. When the patient looks down the projecting portion of the cornea passes under the lower lid and the curvature of the lid is greatly increased. This should flatten the apex of the cone and probably does, but does not seem to affect the curvature where the visual axis enters.

The case seems unusual in the lateness and rapidity of its development; also in the low position of the apex of the pro-

jection. The grinding of the lens on the left eye required a special tool to be made. The curve is about that of a  $1\frac{1}{2}$  inch cylinder and slightly limits the size of the lens. The lens is 14 mm. thick in the center and has to be specially mounted to give it proper support.

1708 Pine St.

## VARIATION IN THE AXIS OF ASTIGMATISM IN DISTANT AND NEAR VISION.

BY FRANK C. TODD, M. D.

Professor and Chief of Department of Eye, Ear, Nose and Throat Diseases, University of Minnesota, Minneapolis.

Report of a case necessitating the use of strong cylinders for distant, right axis 65, left axis 120. For near right axis 45, left axis 135.

M. O. R., male, age 45, occupation real estate business, requiring some office work.

Symptoms, supra orbital, occipital and frontal headaches, which he states he has had during his entire lifetime. Consulted me November 6th, 1905.

Examination under Homat: Right, 6/30, 6/9 with a  $+1.25$   $\square$  3.50, axis 65. Left, 6/30, 6/9 with a  $+50$   $\square$  4.25, axis 120.

These were prescribed with a  $+1.50$  added for near work.

He reported in November, 1906, that the distance glasses were satisfactory, but that the reading glasses blurred for near work, and that he preferred to read without glasses. Upon re-testing I found the same result and prescribed a  $+2.00$  added for near. Again on March 20th, 1907, he reported that his distant glasses were all right, but that he could not see well to read. I found that he had in the meantime secured a pair of bi-focal glasses with a  $+2.50$  added which he did not like, and which he was not wearing, preferring to use no glasses for near work, though he still liked the distant glasses.

I did not see him again until December 15th, 1911. I found him still complaining, as always, that, while the distant glasses were comfortable, the near glasses still bothered him. Upon making another examination I found that his astigmatism had

changed only in the amount, the axis remaining the same, so that the correction for distance was right,  $+1.50 \ominus 1.275$ , axis 65; left,  $+1.00 \ominus 3.00$ , axis 120. I found that with a  $-1.50$  added he was able to read Jaeger No. 1 at from five to twenty inches. By experimenting I discovered in testing each eye separately at the near point that he could see better when the axis of the right glass was turned outward twenty degrees; that is, to axis 45, the same being true in the left eye. I tried both eyes together repeatedly and found that while he insisted upon having the cylinder placed at axis 65 and 120 respectively, while looking at a distance, yet that his vision was always better when the lenses were turned twenty degrees outward on each eye for near.

Accordingly I prescribed two pairs of glasses as above, the cylinder axis of the near glass being rotated outward twenty degrees in each eye, with the result that the patient is quite comfortable and says that he has the first pair of reading glasses that he has enjoyed. He made this report to me December 30th when I re-examined his eyes and found that the same condition still existed.

This variation is probably due to the fact that the eyes rotate when looking at the near point, though this could not be observed while making the examination.

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#### Determination of Blood Pressure by Measuring It in the Artery of the Retina.

Rubino and Bajardi have each devised a simple means of determining the blood-pressure by the force necessary to arrest the circulation in the retina. The patient recognizes the ischemia at once by the inability to see with the eye in question. Rubino describes considerable experimental research on the anatomic conditions and the modifications of the blood-pressure when any of the arteries in the circle of Willis are compressed. The results all confirm the instructive findings when the sphygmometer is applied to the eye-ball with force sufficient to arrest the circulation in the retina; in 100 healthy adults the range was from 80 to 112 mm. mercury. He discusses in particular the relations between the blood-pressure in the artery of the retina and in the other arteries of the circle of Willis.—(Jour. A. M. A.)



## REPORTS OF SOCIETIES

### REPORT OF THE MEETING OF THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

NOVEMBER 23, 1911.

DR. WENDELL REBER, THE PRESIDENT, IN THE CHAIR.

Dr. Joseph L. McCool, read a paper on Rupture of Descemet's Membrane.

*DISCUSSION.* Dr. William Zentmayer said that as Dr. McCool had extended his remarks so as to include traumatic lesions of the eye other than those present in the case which he reports, he thought it apropos to exhibit a case of Hole in the Macula following a blow on the eye by the knotted end of a rope. The ophthalmoscopic picture was a typical one of that condition. The case will be reported more fully later. Dr. Zentmayer said that another interesting traumatic lesion was the Vossius Ring Opacity, of which he had seen several instances.

Dr. William Campbell Posey.—Injury of the interior portion of the eye as the result of a direct blow is rare in comparison with the frequency with which damage is done to the posterior segment of the eye. Descemet's membrane is one of the most important layers of the cornea, as it protects the substantia propria from invasion by bacteria and infection by inflammatory products. It cannot reproduce itself after injury. Like Bowman's membrane, the capsule of the lens and the lamina vitreae of the choroid, Descemet's membrane is a product of the epithelial cells lining it. Dr. Posey then spoke of injury to Descemet's membrane during labor, questioning whether it was always instrumental, and said that in a case he had seen with Dr. Hirst it was thought that the cornea might have been injured by the toe or finger of the foetus.

Dr. Wendell Reber.—We should be very careful to be sure whether so-called congenital opacities of the cornea are due to instruments or intra-uterine trouble. Because congenital opacities generally clear up I gave a favorable prognosis in a case I was recently asked to see in consultation.

It was my pleasure to see this case of Dr. McCool's with him from the first. I was a little bit loathe to agree in his diagnosis at first but now absolutely support him in it. I believe these ruptures are more frequent than present statistics show.

Dr. P. L. Balentine showed a case of interstitial keratitis treated with Salvarsan. He thought it was one of the worst cases of interstitial keratitis he had ever seen. When the patient first appeared she had vision of less than 1/60, now she has about 4/60. "I attribute the recovery to Salvarsan more than any other factor. She is now using yellow salve in the eye. Improvement was evident in four days. In ten days there was great improvement. It is now about six weeks since she had the injection of salvarsan, and the question is whether to repeat the injection or not. She is about ready for the second injection now if she is to have it. The other eye was beginning to become irritated just as the salvarsan was given, but has quieted down entirely. Unfortunately no Wasserman has been done."

Dr. Posey said that he had treated three cases of uveitis with salvarsan, all of whom had presented a positive Wasserman. Two were instances of interstitial keratitis in young boys; in one of these much benefit appeared to be derived from the injections, in the other none. The latter case finally recovered under a course of mercury and the administration of the thyroid extract. The third case was one of intense and prolonged uveitis in a woman, which had resisted all other treatment. Marked and rapid improvement followed the use of salvarsan, and Dr. Posey said that he was convinced that the saving of the patient's sight was due to the use of that drug. Dr. Posey said that the clinical appearance of Dr. Balentine's case resembled tuberculosis, and suggested that a Wasserman and a von Pirquet test should be made before further treatment was essayed.

Dr. Reber: Dr. Balentine has spoken to me about this case several times but this is the first time I have seen it. The generalized clouding he first observed has evidently disappeared. It is now almost entirely punctate and of the mutton-fat variety. If I were to be shown the case as it is today and had known nothing about it I would incline to the idea that it was tubercular instead of syphilitic. The French are not very enthusiastic about salvarsan in interstitial keratitis. In a recent French Journal *La Clinique Ophtalmologique* there were seven or eight cases mentioned, in none of which was there any marked improvement shown by the use of salvarsan.

Dr. John H. W. Rhein, reported a case of brain tumor. The girl was admitted to the hospital October 22, with a history which was practically negative. Her symptoms dated from

April of this year. Had general pains and other symptoms suggesting influenza. Recovered fairly well but had headaches after this. Also would suffer from attacks of unconsciousness followed by vomiting, but had no convulsions. The headache was vertical in character. Later on the muscles of her neck became rigid. Had failing vision on the 26th day of last month. Had a slight weakness or paresis of the left angle of the mouth; when she showed her teeth the left lip lifted. Had previous history of falling to the left and staggered to the left. Not toxic. She therefore had false position of the head when turning suddenly. Professor Packard examined her ears. Wasserman test negative. The first examination of the eyes by Drs. Sweet and Heed showed marked choked disc, but no macular changes except edema. The diagnosis was tumor in the cerebellum.

Dr. Posey said that he had studied the eye-grounds before operation and had found an enormous choking of both nerves, especially in the right eye. Moderate subsidence of the swelling appeared on the third day after the operation and a week later the swelling had appreciably diminished, being perhaps 1 to 1.5 D. less.

Dr. Rhein.—The operation was done ten days ago. Two windows were made in the occipital wall and the cerebellum pushed out normally. We did not investigate any further as the patient's pulse became rapid and condition poor. The patient is much improved, also the vision. The headaches have disappeared, false position of the head has vanished, paresis around the mouth has gone and save for some dizziness the patient is very comfortable. There was no change in the optic nerve conditions until 48 hours after the operation, at which time the most marked change was the lessening of the amount of swelling in the veins. The head of the nerve did not look any better. The fields did not show hemianopsia. Dr. Swindell looked for interlacing of the ocular fields but did not find them.

Dr. Reber reported the case of a man in whom the recession of the mushroom character of the papillitis did not come on for a week or ten days at least after the decompression operation. "That case, as I remember it had some astereognosis. The man's mental condition cleared inside of about three or four weeks by which time the choked disc had subsided and appeared normal. There was a complete return to normal conditions which one would not expect after the pouring out of so much exudate. H-

had 6/7 vision and a condition that, in spite of the terrific inflammation, one would look at twice before deciding there had been anything wrong with the optic nerve head."

Dr. Posey presented a girl with neuro-retinitis in the right eye and optic atrophy in the left, in whom the ocular condition was thought to have been dependent upon chlorosis. The casual factor was however, obscure, as the hemoglobin percentage had never been very low and the general health of the patient had been uniformly good. Disease of the brain and sinuses had been excluded as far as was possible, by careful neurological and rhinological examination and the X-ray. A gynecological examination was negative. The laboratory report stated that both Wasserman and tuberculin tests were "weakly negative." Dr. Posey said that while the laboratory often gave valuable aid to the ophthalmologist in arriving at a diagnosis, all reports designated as "weakly positive" should be received with suspicion and but little reliance should be placed upon them in the final analysis of cases.

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## THE EYE, EAR, NOSE AND THROAT SECTION OF JACKSON COUNTY MEDICAL SOCIETY.

NOVEMBER 16, 1911.

### Report of Case of Perforating Wound of Eyeball with Presentation of the Patient.

Boy, aged 15 years, was injured in left eye by a tack shot from a rubber bean shooter the first of last October. The point of the tack penetrated deeply into the eyeball passing through the cornea just above the horizontal meridian near the limbus on the temporal side. It crossed the anterior chamber, perforated the iris and entered the crystalline lens near the periphery.

I first saw him 5 days later and at that time the vision in the injured eye was limited to counting fingers at about 6 inches. The lens appeared to be completely cataractous and portions of disintegrating lenticular material was protruding into the interior chamber. A small laceration of the iris was discoverable at the wounded place. The anterior chamber was a little shallower than normal as a result of the swollen condition of the lens.

The eyeball was intensely injected and red. There was but little pain and the boy did not complain of it. The pupil

was 3mm. in diameter and did not respond readily to the mydriatic which was freely installed. He has now been under observation 5 weeks and the redness and injection have almost disappeared. There remains only a faint blush in the ciliary region. There has been no increase in tension at any time as I apprehended might occur.

There is now no pain whatever and he says lights look brighter to him than they did a few weeks ago. He can project a candle flame in the dark accurately and recognize the color of red light correctly, but blue light he says looks purple. He can discern the fingers on the hand under favorable conditions. The pupil now dilates better than it did during the earlier weeks of treatment and measures about 5mm. in diameter. The ball has evidently escaped any active infection and still there is a degree of irido-cyclitis present as evidenced by the persistent ciliary injection, sluggish iris and fine deposits like grains of dust upon the membrane of Descemet. The debris of swollen lens material which has been slowly extruded through the rent in the lens capsule is of course capable of setting up considerable irritation but in this case the lens has dissolved with exceptional slowness and at no time has there been debris enough extruded to form a perceptible mass in the lower angle of the anterior chamber so that I am somewhat inclined to suspect the presence of some other malign influence connected with the penetration of the globe by the point of the tack.

The intensity of the circulatory disturbance during the first 3 weeks was very great and I believe it is more rational to explain the phenomena by assuming the presence of some toxin of microbic origin than by the physiologic repair of the very small wound in the cornea and iris and the very small amount of lenticular debris extruded.

*DISCUSSION.* Dr. Blakesley in discussing the case thought the eye would withstand present infection, lens will clear in time. The adhesions to the Cornea he explains as fibers from the Iris.

Dr. Schutz in discussing the case does not look for a sympathetic ophthalmia, would not remove lens that would sever the bands of adhesions.

Dr. Weaver would like to know why some lens absorb more



quickly than do others when free rupture of the capsule has taken place.

Dr. Miller said so long as the eye was quiet he would advise against operative procedure at this time. Let nature have time to adjust itself and care for any infection that may be present. Interference at this time would likely produce violent reaction which would be difficult to control.

Dr. R. J. Curdy presented a most excellent paper on *asthenopia* in which he said asthenopia is not a disease but a symptom—purely functional. There are many causes. Donder established relation between muscular imbalance and asthenopia. Myopia is a frequent cause. All errors of a refraction may induce asthenopia. This is well established. Asthenopia may occur in emmetropia—in cases of ill health, hysteria, physical weakness and the like. Overwork, mental anxiety, nasal disease are found to be frequent causes of asthenopia. Still there are cases that cannot be explained by this most numerous list of causes and we are at sea as to treatment. Much may be done in these latter cases in the way of correcting habits, regulating occupation and source of light.

*DISCUSSION.* Dr. W. M. Reed found great relief in many cases in the use of full mydriasis continued for some weeks.

Dr. T. S. Blakesley employs atropine 1/600 of a grain to one ounce of water used in the morning to relax muscular spasm during working hours. It is not sufficient to interfere with close work. He also gives 5 grains of sodium bromide early in the morning.

Dr. J. W. Sherer in discussing the paper said that he looks to the physical development of these cases, insisting on proper habits and manner of living.

Dr. C. W. Gosney emphasizes proper light for close work and abundance of out door exercise.

Dr. W. H. Schutz said these conditions were due to faulty habits in use of the eye for close work. Faulty position of the body. He hopes to see the day the architect would pay as much attention to proper lighting of buildings as to the heating and other features of the design.

HUGH MILLER,

*Secretary.*

**WILLS HOSPITAL OPHTHALMIC SOCIETY  
MEETING.**

MONDAY, DECEMBER 4, 1911.

DR. RISLEY IN THE CHAIR.

Dr. S. D. Risley presented a case of epithelioma at the inner angle of the orbit. It involved the skin of the upper eyelid, the brow and the nose, but did not encroach upon the mucous surfaces. The mass had been thoroughly removed by scraping, and the denuded surface covered with a Thiersch graft. Although the operation had been done only three days before, the graft, which had been removed from the inner aspect of the forearm, was adherent, and was of a healthy color; it exhibited very little, if any inflammatory reaction. Dr. Risley urged the importance of certain technical points in the operation. In the first place, he thought it was necessary that every diseased cell should be removed, which could be accomplished better by scraping than by cutting with the consequent loss of tissue. The graft should be thick enough to include all of the living epithelial cells. It should not be removed from the razor before placing it on the denuded surface of the wound, and no chemical solutions stronger than the physiologic salt solution should be applied to it. Bichloride solutions injure the cells and thereby defeat the purpose of the operation. The solution should be dropped on the surface of the razor during the removal of the graft to prevent it from adhering to the dry surface of the metal.

Dr. Risley exhibited a case of pulsating exophthalmos, also, on which at his request, Dr. John B. Deaver had tied the internal carotid artery three weeks before. The exophthalmos has largely disappeared; there is no pulsation nor bruit in the orbit, nor over the upper part of the face, which were present before the operation, and no intraocular hemorrhages followed the ligation. The central retinal veins are still full and tortuous, however, and there is some oedema of the conjunctiva. The man is free from pain and is enthusiastic over the beneficial results of the operation.

Dr. McCluney Radcliffe exhibited two cases of tubercular keratitis. The first, a woman with a tuberculous family history, had been under treatment by a general physician for seven months before she consulted Dr. Radcliffe. The conjunctiva was nodular, in the cornea were scattered opacities and the globe was injected. A cutaneous test being positive, tuberculin was

injected in doses from 2/500 mg. to 10/500 mg. When rather marked reaction followed accompanied by distinct haze of the cornea, the dose was reduced to 4/200 mg. and repeatedly maintained at 2/200 mg. There has been a rapid gain in health, an increase of seven pounds in weight, the conjunctiva is smooth and the cornea clear except for the presence of old opacities. The second case was one of ordinary tubercular keratitis which had existed for several months. The patient was quite anaemic, and reacted to the von Pirquet test. The cornea has cleared rapidly under injections every four days of tuberculin in doses of 1/500 mg.

The Chairman stated that he had frequently noticed a sudden and otherwise inexplicable haziness of the cornea to follow on the administration of tuberculin in doses so large as to produce a general ocular reaction, but he had not seen any harm follow, however.

Dr. Zentmayer exhibited a patient showing the result of the removal of a corneal staphyloma. The operation consisted of the abscission of the cornea by the Lagrange method. After circumseising the cornea the capsule of Tenon is opened and each straight muscle secured by a double-armed suture. Then the tendons are severed from the sclera. A purse string is run through the conjunctiva and the cornea is abscised. The purse string is then drawn upon until the opening is partly closed when the opposite straight muscles are tied together. The purse string is then tightened. The healing in the case shown was prompt and the stump excellent.

He exhibited a case of "Hole of the Macula" also. A lad of 15 had been struck in the right eye by the end of a knotted rope. Immediately after the accident there was hyphema and a partially dilated oval pupil. Later the retina was found to be very hazy with an opacity in the macular region. At the fovea there was a dark red perfectly circular area about one-third the diameter of the disk. In the course of a week the surface of the area presented a coarsely granular appearance with several yellowish white spots scattered over it. There was a distinct concentric reflex about the temporal margin of the spot, and, some distance away on the nasal side, there was an elevated ridge in the retina, the surface of which contained a few brightly reflecting bodies. There was a positive absolute scotoma. V. = 20/500.

Dr. Wm. Campbell Posey exhibited a Bardsley scotometer.

an instrument which he had found well adapted for the detailed investigation of the visual field with  $30^{\circ}$  of the point of fixation. It consists of a hollow sphere with a central fixation disc which is perforated to enable the examiner to detect any deviation of the eye of the patient from the point of fixation. The carrier of the test objects, which are of various sizes, is moved along a narrow slot in the sphere; it contains a scale upon its posterior surface to indicate in degrees the position of the carrier from the centre of the apparatus. Another scale on the edge of the posterior surface of the screen bears the circumferential degrees. The screen is rotated round the fixation disc by a screw at the bottom of the apparatus, and any existing scotoma is located by the two scales. The speaker said that he understood that Mr. Bardsley had just devised a self registering model.

Dr. Zentmayer said in his experience he had found the black board so satisfactory in mapping out scotomata that he had not felt the need of any special apparatus.

Dr. Posey exhibited a girl with tubercular keratitis. The ocular inflammation displayed the tongue-shaped invasion of the tissues which is so characteristic of tubercular inflammation of the cornea. There was a tubercular history and the von Pirquet test was positive. In addition to the usual local treatment, the girl is receiving tuberculin emulsion internally.

As an additional note upon a case of double cataracts presumed to have been caused by electric injury presented by him some months preceding and which had been fully described before the society in a paper by Dr. Sautter, Dr. Posey said he had just successfully extracted a fully formed soft cataract from one of the eyes.

Dr. Posey exhibited a young boy upon whom he had performed a Mules' operation 10 days before, on account of pseudoglioma. The stump was perfectly healed. To insure the permanent retention of the globe in the scleral cavity, he insisted upon the use of a comparatively small ball.

Dr. Milton Griseom read a paper on optic neuritis following measles and reported a case treated by him at the Hospital. The patient, a girl of 8, became blind during her convalescence from a mild and uncomplicated attack of measles. Upon examination the right eye was found to be totally blind and the left retained light perception only. Both eyes showed a very marked degree of optic neuritis. Under active catharsis and diaphoresis, together with the internal administration of Donovan's solution

and thyroid extract, the vision improved rapidly. In about six weeks the neuritis had completely subsided, leaving the disks very pale and apparently atrophic. The patient was then put on strychnia nitrate and negative galvanism. This was continued for five months, at the end of which time vision in each eye was normal, and the visual fields showed no contraction for form or color.

Griscom stated that he had found only 23 cases reported of blindness due to optic neuritis after measles, and from his analysis, he is not yet able to arrive at a conclusion as to the cause of so grave a complication, which awaits exact data to be derived from pathological studies. In his own case he believed the process was not a true inflammatory one with deposition of a serofibrinous exudate between the nerve fibers and a consequent shrinkage with atrophy, but simply an edematous swelling caused by irritating toxins circulating in the blood and lymph streams.

Dr. Chance remarked that he had had opportunities to examine quite a large number of children during an epidemic of measles several years ago in whom he found pronounced swelling of the disk in many cases. Those observed, such as he can recall, did not present evidences of meningitis nor oculomotor derangements. It had not been possible to follow up the children after they were sent home from the hospital. At that time the close connection existing between the ocular structures and the adjacent sinuses was not as well understood as now-a-days. Yet even then it was his opinion, encouraged by that of the wise epidemiologists with whom he was associated, that the swelling of the nerves was caused by the general "cold in the head" so constantly affecting the mucous surfaces in measles.

Dr. Posey said that Dr. Griscom has discussed with great thoroughness the various causes which might have occasioned the optic neuritis in the case which he reported, and he thought that Dr. Griscom was warranted in attributing the inflammation to toxins generated by the measles. It would be of interest to know whether the pure toxins of measles alone were capable of setting up an inflammation in the optic nerve, or whether toxins the products of intercurrent affections excited by the measles were necessary. He asked whether all of the cases of paralysis of the 6th nerve which Dr. Griscom had cited as occurring in connection with neuro-retinitis from measles had been associated with meningitis.



Dr. Ziegler believes that as the neuritis was not noticed until after the attack of measles the cause may very well be ascribed to toxins developed in the course of the general disease. It is well, however, to have in mind that oxydation is very greatly interfered with by the lymphatic stasis in the mucous sinus tracts. In this connection he recalled a case of influenza with marked papillitis which subsided after the administration of calomel and hot baths; and from blindness, the sight was completely restored.

BURTON CHANCE, Secretary.

## CHICAGO OPHTHALMOLOGICAL SOCIETY.

REGULAR MEETING, HELD DECEMBER 18, 1911

THE PRESIDENT, DR. H. W. WOODRUFF, IN THE CHAIR.

### Treatment of Corneal Abscess by an Old-time Surgical Procedure.

Dr. H. B. Young, Burlington, Iowa, reported the case of a woman, forty years old, who, during a convalescence from small pox, contracted an abscess of the cornea. Conservative measures failed to give relief, and even the actual cautery did no more than control the trouble for a few days. Curettage and the application of ninety-five per cent phenol gave only temporary relief. Finally, he made a crucial incision as for carbuncle, and applied the phenol thoroughly. Convalescence promptly followed. The resulting scar is small and thin.

### A Case of Amblyopia of Obscure Origin.

Dr. Young also reported the case of a man, aged forty-six, whose vision became dim following an attack of grippe. The right eye is weaker than the left. Tension is normal; there is no tenderness nor inflammation. Form fields are not restricted, but the color sense is defective up to the point of abolition in the right. He had a venereal infection twenty years ago, but otherwise his history is negative. An intestinal toxemia suggested itself but the case is indefinite.

**DISCUSSION.** Dr. J. E. Colburn has always had good success following the use of phenol with or without curettage, although he has never used the knife. He has found the actual cautery sufficient.

Dr. H. S. Gradle stated that he found the nerve in the amblyopia case absolutely white, as in a primary nerve atrophy. In the retina and chorioid are minute white areas, as in a retin-

itis punctata. Here and there these areas are coalescent. They occur mainly at the side of the blood vessels, and are scattered throughout the disk in the macules, in a circular fashion.

Dr. Young stated that while the nerve looks whiter than one would expect to see it, he could not make a diagnosis of atrophy without some limitation of the form field. The man probably had a venereal infection which was more extensive than would appear, and he thought that there might be developing a secondary cerebral disturbance.

In regard to the abscess of the cornea, he believed that when the lesion is more or less burrowing in character, curettage is a very unsatisfactory treatment. One must go through to the solid tissue, apply the phenol to the entire necrotic area, both the visible portion and the invisible portion under the edges to get good results. He thought the treatment was much less radical than a Saemisch section.

### **Nystagmus.**

Dr. Eugene R. Lewis of Dubuque, Iowa, discussed the physiology of nystagmus and also its significance as a symptom in disease. He recognizes a vestibular, a cerebellar and an ocular type. Regarding the latter, he has evolved a new theory concerning the development of the symptom. He holds that as cerebral development proceeds, cerebral activities increase, and the increasing activity in the oculo-motor centers not being checked by inhibitory cortical impulses finds expression in nystagmus of the ocular type. This nystagmus is undulating, uninfluenced by the usual voluntary eye movements, does not cause apparent movement of fixed objects, and is always associated with low visual acuity.

**DISCUSSION.** Dr. Clark W. Hawley called attention to a singular coincidence of hereditary nystagmus. All of the boys in the families of all of the sisters have nystagmus. None of the girls in the families of the sisters have nystagmus. There are five sisters who have boys and girls. In the families of the brothers of these sisters there is no evidence of nystagmus.

Dr. George F. Suker did not agree with Dr. Lewis as to the origin of ocular nystagmus. It might, he said, be caused by defects, such as those he mentioned, but there undoubtedly is a pure ocular condition of nystagmus which he did not mention and which might be classified as a pseudo-nystagmus, due to diseases of the central nervous system. It is not a complete nys-

tagmus, seldom rotary, but always limited to one-half of the globe, and the eye swings from that position to the central line without crossing it. There is seldom a defective refraction media, but ocular disturbance is not associated with labyrinthine or cerebellar disease. It comes on usually in the beginning of multiple sclerosis and senile dementia or general paresis, and is of great value from the diagnostic standpoint.

Dr. H. Walker has seen a case of purely voluntary nystagmus occurring in a man. There was no pathological change in the eye, and no disease of the brain, the man being normal in every way. He asked Dr. Lewis in which classification he would put such a case.

Dr. H. W. Woodruff recalled two cases of that kind which had been presented before the society.

Dr. Lewis stated that the condition Dr. Suker described would be more properly grouped under false nystagmus, for the reasons which he gave. The symptoms of this condition are sometimes of one kind and sometimes of another, but they are dependent on some deviation in the nervous mechanism, and the mere fact that it is the ocular muscles which are affected should lead one to classify them in a category where they do not belong. As to what the voluntary control over the ocular muscles might mean, he was not prepared to say. One would have to know what the individual case was, because there might be some peculiar individual control over these muscles similar to the control of the ear muscles, but that does not necessarily mean that there is a chorea of the ear. In the development of nystagmus of the ocular type which one can recognize by the absence of apparent movement of fixed objects, that is not true of the kind of movements which Dr. Suker referred to, where the condition is of cerebellar origin. In movements of the eyeball without apparent subjective movement of the fixed objects, it is difficult to give an explanation of it. The only way one can grasp this is by development. Instead of developing in the sensorium or a point in the retina, you develop a line in the retina.

#### Cases of Trachoma Treated by the Jequirity Method.

Dr. Clark W. Hawley reported four cases of trachoma treated with jequirity; one patient being presented before the Society. The results of the treatment in all cases have been good, in one case the result was brilliant. In all cases the im-

provement continued for many months. The patient presented at the meeting was a woman 30 years old, who had had trachoma for a number of years and had been treated by a number of oculists in the usual way with but little success. When first seen there was an extensive bilateral pannus and a number of trachomatous ulcers of the left eye and one large ulcer in the center of the right cornea.

Dr. Hawley usually treats the eye about 5 o'clock in the evening so that by the following morning same results are observable. If no inflammatory condition is manifest the jequirity is repeated the next morning. The lids are enormously swollen and the discharge very profuse. Great care is taken in washing the eye thoroughly every hour; at first applications of cold for about twenty-four hours and then applications of hot water for two hours at about twenty minutes at a time until the swelling and inflammation has subsided. The subsidence of the inflammation and swelling continues for about a week and at the end of another week the lids are practically normal, the cornea becomes quite clear and the improvement in vision was commensurate with the result.

#### **Micro-Slides of Tarsal Conjunctiva Trachoma.**

Dr. L. N. Grosvenor presented slides of a typical trachoma follicle, a follicular cavity, the papillary form of trachoma, cystic mucoid degeneration and several cases of fibroid changes.

*DISCUSSION.* Dr. E. R. Lewis of Dubuque, Iowa, asked Dr. Hawley whether he would recommend the jequirity method in a case of persistent granular ulceration with vascularization of the cornea in a tuberculous youngster, fourteen years of age, who had phlyctenules which have resisted every other kind of treatment.

Dr. George F. Suker has seen some of Dr. Hawley's cases and reported the results as being wonderful. He said that many years ago his chief had been in the habit of using jequirity in about the same way as Dr. Hawley used it, and he had had many years of experience with trachoma. He never used the cold application until he thought there was sufficient swelling and inflammation to necessitate canthotomy, and he never thought he had a good result until he had a thick membrane of pseudo-diphtheritic type; in fact, the thicker the membrane, the better the result. Furthermore, if the inflammatory condition

subsided inside of a week or ten days and the cornea was not clear, he again applied the jequirity. He applied it direct, so as to get a violent reaction, and therefore he never failed to get the pseudo-diphtheritic membrane. He insisted that the jequirity be washed before it was used. He never paid any attention to the corneal ulcer. It invariably cleared up nicely, and there was no fear of perforations. The thing to guard against is to get the jequirity pure. The bean is apt to be impure and contain substances which are dangerous. The impalpable power is not irritating as a foreign substance. It readily absorbs the lachrymal secretion and becomes pulpy, while the foreign ingredients remain there as irritating bodies and cause a reaction which is not produced by the jequirity.

Dr. E. LaMothe has had quite an experience with the jequirity method in a clinic in Paris. An oculist in that city he thought, was the originator of the method, but he did at one time think of discontinuing its use because of several cases occurring in which he could not control the reaction. Perforation of the cornea followed. Dr. La Mothe thought it wise to follow the new method of Romer, who makes a solution of jequirity in three different strengths, beginning the treatment with a weaker solution and using the stronger if a sufficient inflammatory reaction is not obtained. He also uses a serum from an immune horse. With this serum he controls absolutely the most severe inflammatory reaction following the use of jequirity in from four to six hours.

Dr. Schneider inquired whether setting up an acute inflammation on top of the chronic inflammation was not the essential principle in the use of jequirity, and would any other substance which produced a like reaction answer the same purpose? The same line of treatment is followed in the case of a skin lesion where a chronic inflammation is converted into an acute inflammation, and then the latter is treated. He also inquired whether anyone had tried the use of the gonococcus for the purpose of setting up an acute inflammation? He thought that the jequirity method of treatment was too severe and he certainly would not allow anyone to use it in his eyes.

Dr. L. N. Grosvenor pointed out that the idea is to set up a phagocytosis, and therefore the more acute the inflammation, the better the result. In trachoma there is no phagocytosis.



hence the necessity of setting up the acute inflammation, and that is the foundation of the jequirity treatment and of the acute gonorrheal infection.

Dr. Hawley said he did not have any experience with cases such as those mentioned by Dr. Lewis. If the patients were willing to submit to the treatment, he would do what he could. As to doing harm, he had not the slightest fear of losing vision. He does not try to control the inflammation; the more reaction, the better. The cold is used only to alleviate the pain and not to control the inflammation. In none of his cases has he had reason to worry because of the inflammation or excessive swelling. Only twice has he had to use the jequirity more than once, and then only because he did not use enough the first time. There has been no return of the trouble in the first case after five years.

#### **A Case of Interstitial Keratitis of Acquired Luetic Origin.**

Dr. Carroll B. Welton, Peoria, cited the case of a woman, aged nineteen, who complained of pain, failing vision, photophobia and lachrymation. She also suffered from insomnia, because of pain, reflex blepharospasm and sneezing. The right eye showed ciliary congestion and a ground-glass appearance of the cornea, the deeper layers showing a grayish infiltration consisting of spots enmeshed in a network. Vascularization of the cornea was present, more in the right than in the left eye. The iris was invisible. Iridocyclitis was present. A very faint reflex was present in the right eye, and in the left of the upper half a pupillary area only. Fundi indistinct and anterior chamber deep; tension normal. Vision in right eye, hand movements at two feet; left eye, hand reflex only. Patient denied syphilis; tuberculin test negative. Treatment consisted in protecting eyes against light; hot applications and instillation of dionin and atropin; potassium iodide internally. Improvement gradual, but steady. The lesion was typical of syphilis.

**DISCUSSION.** Dr. Mortimer Frank did not regard the condition as being a rare one. As was pointed out by Dr. Wilder in a paper read before this society some years ago, the cases are not reported because the condition is not believed to be rare. He has had several cases, and has a patient under observation now—a young boy. Dr. Welton, he said, failed to mention

whether a Wassermann test had been made. Although a negative result does not mean anything, a positive reaction is significant. The test should always be made.

Dr. Suker inquired how soon after the tuberculin injection improvement was noted; and how long before mixed treatment was begun.

Dr. R. J. Tivnen wanted to know what tuberculin test was used.

Dr. H. W. Woodruff thought that the point the Doctor wanted to bring out particularly was whether this was a case of acquired or hereditary syphilis. He failed to see that the argument presented was in favor of one more than the other, because interstitial keratitis of the type described is common in hereditary syphilis and yet it is lacking in other essentials, so that it would be wrong to place the case in that category.

Dr. Welton, in closing, speaking of the rarity of these cases, said that they are rare only because they are not reported, but such cases usually occur in the very young. The discussion held at the time Dr. Wilder read his paper was to the effect that quite a few cases had been seen, but only twelve had been reported. Up to 1908 one hundred cases of the acquired form were reported in the literature. He did not make a Wassermann test in this case, because the patient could not afford to come to Chicago to have it made, and there were no facilities in Peoria for making it. As to the tuberculin, it was given three times, 0.5 mg. the first time, 1.5 mg. the second time, and 2.5 mg. the third time, of the serial dilution Nos. 3 and 4, Mulford's preparation. The patient was in the hospital at the time and her temperature was taken every two hours for two days. The temperature was irregular, rising about one degree, but fell to normal during her stay in the hospital. The improvement in her condition occurred immediately after the third injection of tuberculin. There was neither local nor general reaction. As to whether the disease was inherited or acquired, he thought that if it had been inherited, the treatment given would have made her worse. The improvement in the case took place in such a short time, from September 28th until five weeks ago. When mercury is given in a case of inherited corneal trouble, the patient usually gets worse and not better. It was on the effect of the treatment in this case that the diagnosis of acquired syphilis was made.

### Thrombosis of One of the Retinal Veins Presenting a Typic Picture of the Leber Spot.

Dr. George F. Suker presented a healthy robust youth of 22, whose family and personal history were negative. After lifting a very heavy weight, in a stooping position, one day, noticed after the day was over that his left eye was rapidly losing its vision. Within 24 hours practical blindness ensued. Ten days later he consulted Dr. Suker.

**Status Praesens:** Tension, external appearance, and pupillary reaction normal, media clear, vision faint. Light perception. The disc suffused, particularly lower half, several pin points and flower-shaped hemorrhages in immediate neighborhood also in lower quadrant towards temporal side. A band of apparently oedematous retina extended from disc to macular area. The vessels were of practically normal caliber and outline, excepting that the lower retinal vein coursing towards the temporal region was enlarged and surrounded by a distinct haze. Apparently a serous effusion, not tortuous. Above the macular area there was a typic and classic Leber spot in every particular a moderate film of haziness surrounded the entire stillate spot.

Blood pressure normal, no cardio-vascular lesion recognizable, frequent and careful urinalysis negative. Potassium iodid in ascending doses prescribed for three days. No improvement. Now deep local circulatory massage of the eye, through lid three times a day, five-minute periods, followed by hot compresses, two-hour periods, the Ki. was reduced to 20 grains per diem. Improvement followed the second day of massage, fingers at 4 ft. or so. The vitreous now showed a minute haziness for several days, when it disappeared entirely.

No change in the treatment was instituted and on 10/27/11 vision with glass ( $-50$  ax. 180) $=20/32-1$ .

The entire picture gradually cleared up—no vestige remains of the Leber spot. The nerve head is practically normal in appearance, the hemorrhages are all absorbed. The other interesting feature is that the patient has a large positive scotoma embracing about  $\frac{3}{4}$  of the lower field corresponding to the lesion, evidently caused by the Leber spot. His central vision today with the correction is 20/30, and he still complains of a moderate haze covering objects looked at. His large scotoma does not seem to annoy him greatly. The fact that one cannot

detect "any visible" change in the choroid or retina with so large a scotoma as a result of such a grave lesion on this is indeed worthy of note. Perhaps, thought Dr. Suker, changes may become visible later.

*DISCUSSION.* Dr. Major Worthington referred to a patient whom he exhibited two years ago, suffering from the same condition. The man was fifty-one years old; had 9/200 vision in left eye, and 20/20 in the right eye. Dr. Wood and several others who saw the case at the same time pronounced it one of thrombosis of the retinal vein. There was from 8/10 to 11/2 per cent of sugar in the urine, no albumin at any time; specific gravity, 1022.

Dr. H. W. Woodruff inquired as to how the eyeball had been massaged, and whether the improvement in the case was attributed to the massage?

Dr. Robert von Der Heydt inquired as to the possibility of using some drug which would dilate the peripheral vessels and thus favor absorption; amyl nitrate or nitrous oxide. This might be possible if the thrombosis was not too well organized. He thought that this would be better than giving potassium iodide internally for its mental effect.

Dr. Suker said that at no time did he find albumin or sugar in the urine. He was convinced that the massage and not the potassium iodide was responsible for the improvement, because he did not start the massage until three or four days after he first saw him, whereas the patient had been taking large doses of potassium iodide for some time, but noticed no improvement. The massage was given three or four times a day for four or five minutes at a time, and immediate improvement was noted. The dose of the iodide was reduced and the massage continued. His vision improved very much. He thought the suggestion of using amyl nitrate or nitrous oxide to open up the peripheral vessels in order to dislodge the thrombosis was a good one, but he did not believe it was feasible in his case, because the improvement under the treatment given was continuous, and no other measure was called for. However, he thought it would be an admirable procedure to use in cases where the massage did not give relief. Deep local massage directly through the lens administered with the pulp of the fingers or a pneumatic masseur will accomplish practically the same thing, namely, opening the peripheral vessels.

### **Monocular Retinitis Pigmentosa.**

Dr. A. A. Hayden reported the case of a man who presented this condition in one eye, the picture being typical of the four cases previously described in the literature. The interesting feature was that the man absolutely denied a syphilitic infection at any time.

*DISCUSSION.* Dr. Robert von Der Heydt called attention to the fact that another case of this kind was reported by Hans Reuter, in 1908, in the *Archiv für Augenheilkunde*. The patient was sixty-five years old, and had acquired syphilis thirty years before.

Dr. Suker wanted to know whether the irides had been examined with reference to whether the rugae were present or absent, and whether by oblique examination there was apparent thinness. He asked this to eliminate positively a syphilitic infection. He thought that the man had a Rhomberg and an absent patellar reflex. He had an Argyll-Robertson pupil, but that, of course, did not mean tabes, although it is positive evidence of the fact that the spinal cord has been involved. This might happen in an early senile dementia, or in a multiple sclerosis. He has noticed in cases of syphilis of old-standing that the pigmentary surfaces of the body elsewhere suffer loss of pigment, and this naturally would include the irides, and that these instead of being folded in appearance, show a peculiar flattening out. By oblique examination there is more or less absence of pigment, and if that is the case one might put down as an etiological factor syphilis, together with marked arteriosclerosis, which is present in this case.

Dr. Hayden said that the case had not been transilluminated, but that the markings in the iris were normal. The irides were examined by himself and others and no changes were apparent.

### **Fetal Iridocyclitis with Probable Glioma.**

Dr. E. La Mothe reported the case of a child, six months old, in whose left eye there was a pupillary membrane and seclusion of the pupil. The anterior chamber was very shallow; the tension of the eyeball normal, although two months ago it was minus 1; in the right eye, under slight dilatation, there was nearly total synechiae, although there was a tumor projecting



into the fundus near the ciliary body on the nasal side. The light color of the tumor led him to think it was a glioma.

WILLIS O. NANCE,

Secretary.

## SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OCTOBER 19, 1911.

DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

### Late Results of Contusion of the Globe.

Dr. T. B. Holloway cited the history of a colored boy who had been struck on the left eye by a stone, one week before he came under observation. The point of contact was over the lower lid. The vision of O. D. was L. P. and O. S. 6/6. The cornea was hazy, the pupil horizontally oval, and, while not dilated, it failed to react to light. Only a faint fundus reflex could be noted and no view of the fundus was possible owing to the cloudy vitreous. There was no tenderness or thickening about the margins of the orbit. Four days later there was still some edema of the cornea, but no vitreous opacities could be seen. The entire temporal half of the fundus was covered by the most extensive bank of edema that the reporter had ever seen. The retinal veins were dilated and a number of flame-shaped hemorrhages could be seen. After ten days there was but very slight improvement, but from this time on there was a slow and gradual absorption of the retinal edema and an increasing pallor of the disk. Five weeks after the accident the edema was still quite perceptible about the macula, although the macula had practically cleared and no hemorrhages could be noted, but a series of tags of exudate could be noted at the top of the disk which showed marked pallor. The eye was slightly divergent. One month ago the vision of O. D. was 6/45 and of O. S. 6/6. The disk was markedly atrophic and the arteries thread-like. At the upper margin of the disk a few chalky white spots could be noted. A candle field taken some time after the accident showed light perception about the periphery.

Dr. S. D. Risley stated that cases of this type were very interesting, and referred to a series of cases he had reported some years ago.

Dr. Zentmayer said that the thought occurred to him that

as a result of the marked and persistent edema of the retina, upon which Dr. Holloway had laid particular stress, there may have resulted a degeneration of the ganglion cells of the retina to which the optic atrophy was secondary.

Dr. L. F. Appleman stated that he had seen a case in which the patient had been struck over the left eye with a piece of wood, and that following this, complete atrophy of the nerve was observed without evidences of retinal edema.

Dr. Hansell said that the determination of the immediate cause of the optic atrophy was difficult. The probable explanations have already been offered, and of them I am inclined to accept that of fracture at the optic foramen. The cases described by Dr. Risley, to which he has alluded, seem to be analogous. In support of this supposition is the gradual and not sudden onset of blindness and the retention of only the extreme peripheral field. Had hemorrhage either in the optic nerve itself or in the sheath of the nerve occurred, we should expect immediate loss of a part or the entire field. It is true that a hemorrhage, if at all extensive, would also lead to atrophy.

In closing, Dr. Holloway stated that while he had referred to the possibility of a fracture about the optic foramen, there had been no evidences of a fracture of the orbit as far as could be detected by palpation. Certainly the edema was extensive enough to cause extensive changes in the ganglion cells of the retina.

### **Traumatic Aneurysm of Cranial Artery.**

Dr. S. D. Risley presented for study two cases of traumatic aneurysm of cranial arteries. The first had received a blow on September 4, 1911, from a man's fist on the ramus of the right jaw, which rendered him momentarily unconscious. He remained in bed for a week, but had not been able to resume his vocation because of pain in the head, mental confusion, diplopia, and "a noise in his ears." He came to the Wills Hospital on October 2 for relief. He then had proptosis of the right eye-ball, estimated at 10 mm., swelling of the lids, and slight chemosis of the conjunctiva, with full veins near the inner canthus. The rotation of the ball was impeded to the slightest movement in any direction except downward. The proptosis could not be reduced by pressure; there was no tactile thrill, but a well-marked pulsation synchronous with the arterial pulse and a characteristic blowing bruit, also synchronous with the systolic

pulse, failing in diastole. This could be heard best over the eye, but was transmitted throughout the anterior part of the skull and over both ears. It was promptly arrested by pressure over the right internal carotid artery, and during the pressure the exophthalmos, as measured by the exophthalmometer was reduced 4 mm. After ten days in bed the headache, swelling of the lids, and chemosis of the conjunctiva, disappeared, the proptosis diminished, and the blowing bruit changed to a high-pitched musical note, but was variable in quality; at times it could be heard with difficulty and not at all by the patient except by placing the ends of the fingers in the meatus of each ear.

Dr. Risley was inclined to the opinion that the lesion was in the ophthalmic artery after its emergence from the optic foramen, but pointed out the possibility of its being further back, where it interfered with the return circulation, possibly at the cavernous sinus; this view being suggested by the edema of the lids and pulsation in the ball. He felt that the former view was more tenable because of the impeded movement of the ball upward and the fact that the proptosis could not be reduced by pressure. There were no intra-ocular hemorrhages and but slight fulness of the retinal veins. Vision in the right eye was 6/12 and the lower temporal field contracted, but this contraction disappeared after a week in bed. He thought it probable that ligation of the internal carotid would be necessary but that in the meantime the pressure treatment and rest would be useful in aiding the establishment of the collateral circulation.

In Case 2, three years before applying at the Wills Hospital, the patient, a man aged, 30 years, had been injured by having his head caught between a trolley car and an express wagon. He was taken, in an unconscious condition, to a hospital, where he remained for "seven weeks," most of the time unconscious of his surroundings, but tells of bleeding from his left ear and spitting blood; that for a long time food collected in his left cheek, and that his left eyelid could not be opened. When finally discharged he had great difficulty in getting about the street. He was dazed, had a noise in his head, either could not hear or could not comprehend what was said to him, and saw double. He then applied to another hospital, where he was treated by electricity applied to his ears for many weeks, without relief.

When applying at the Wills Hospital he had complete loss of power in the left external rectus, but no oculomotor impairment unless a doubtful sluggish reaction of the right pupil could be so interpreted. There was a doubtful, slight proptosis of the right eye, but the right side of case was more prominent than the left side. Central vision was normal in each eye, but the field of vision in the left was concentrically contracted to approximately  $30^{\circ}$ . There was a loud blowing bruit, synchronous with the systolic pulse, which could be distinctly heard over any portion of the skull, but loudest over the left side of the head anteriorly and over the right eyeball. The man himself says that when he closes the right eye the bruit almost ceases, but this is not verified by auscultation. The bruit becomes very faint under pressure upon the left internal carotid, and ceases entirely when the right is also closed by pressure. Through the courtesy of Dr. Manges and Dr. Sweet, painstaking X-ray plates were made of both cases, but no fracture in either case could be demonstrated or other important evidence obtained as to the location of the injury sustained. Dr. Risley thought, however, that the transient palsy of the upper lid on the left side and of the left cheek, together with the complete and permanent paralysis of the left externus, gave a fairly accurate idea of the location of the injury in the second case. That in view of the bleeding from the left ear there could be but little doubt that there had been a fracture at the base of the skull, and that the aneurysm was probably well back in the circle of Willis. He thought the prognosis a nearly hopeless one so far as relief was concerned, since it could only be hoped for by ligation of both internal carotids.

Dr. Holloway stated that he realized that it was usually bad judgment to express an opinion in regard to cases of this character when seen the first time. In reference to the first patient shown by Dr. Risley, he felt that where there was a history of a blow on the jaw followed by pronounced exophthalmos, a subjective and objective bruit, which could be heard loudest over the affected eye, a pulsation that could be felt upon pressure of the globe into the orbit, and finally, the existence of a venous ectasia over which pulsation was detected—that these classic symptoms would warrant the suggestion that the patient had a pulsating exophthalmos, due to a rupture of the internal carotid in the cavernous sinus.

As to the second case resulting from a squeeze injury, despite the negative results of an X-ray plate made three years after the receipt of the injury, he believed that this patient had a fracture of the base of the skull involving the petrous portion of the temporal bone, and that the facial nerve was probably involved as a result of this injury. As to the other ocular nerve involvements, these might have occurred either as a direct result of the fracture, or may have resulted from lesions, probably minute hemorrhages, involving their nuclei. The case suggests one cited by Cushing, where the patient's head was caught between a beam and the side of a ship, and in which there followed ocular palsies of the left eye with marked pupillary changes, the exact character of which could not be recalled. This patient, after an improvement in his condition, some years later developed a pulsating exophthalmos of the right eye.<sup>1</sup> In the present case, with the presence of an exophthalmos and pulsation that can be felt upon pressure upon the globe and the existence of a subjective and objective bruit, Dr. Holloway thought that a pulsating exophthalmos due to the same cause as in the first case could not be excluded. While the bruit was heard loudest over the left side of the head, there was a distinct accentuation of the bruit over the right eye.

Dr. Hansell said the first of Dr. Risley's cases had all the prominent symptoms of an arteriovenous aneurysm, the bruit, the pulsation, the congestion of the veins of the upper lids, the proptosis, and finally, the diminution of the exophthalmos by pressure on the internal carotid.

It reminded him of the only case he had ever seen. A girl received a severe blow on the eye and orbit resulting in the symptoms mentioned. Dr. Keen tied the internal carotid with temporary relief. Soon the symptoms recurred in all their former intensity. He then tied the internal carotid of the other side. Edema of the brain was followed by fatal termination.

In his second case Dr. Holloway had so well described his own opinion that it was needless for him to repeat.

Dr. Sweet said that stereoscopic plates were made of both sides of the heads of each of the patients shown by Dr. Risley, and that he had carefully studied the plates with Dr. Manges.

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<sup>1</sup>Since this discussion an abstract of Cushing's case history has been consulted, and it was noted that the pulsating exophthalmos developed three years after the original injury, and followed a slight blow on the back of the head.



Although the history of one of the cases pointed to a fracture of the base of the skull, it was impossible to demonstrate from the plates any abnormal thickening or changes to point to an injury of this character.

Dr. Leonard Frescoln thought it would be advisable to keep in touch with cases of this character, inasmuch as autopsy reports were of the utmost value for the diagnosis and treatment of future cases.

### **Monocular Exophthalmos.**

Dr. Sweet showed a case of monocular exophthalmos that he had examined with Dr. A. A. Sargent in the eye clinic at the Polyclinic Hospital. There was a history of a blow upon the eye with a large piece of coal three years previously, but vision was not affected until one year ago. At first there was some slight dimness in sight, and this gradually increased until light perception was lost. Ten months ago the eye became slightly more prominent than the other, and this has gradually increased since that time. Hertel's instrument records: R. S., 14 mm., L. E., 29 mm. The downward and outward rotations of the globe were limited. No bruit could be detected. The ophthalmoscope showed complete optic atrophy, the retinal arteries thread-like, and the veins full and tortuous. Examination of the nose and throat was negative, and the diaphanoscope gave clear illumination of the sinuses and indicated no growth in the orbit. As the patient had only been under observation for twenty-four hours, no opportunity was afforded to have X-ray examination made. In view of the possibility of some orbital growth, the patient agreed to permit an exploration operation and removal of the eyeball if necessary.

Dr. Hansell said that his examination of Dr. Sweet and Dr. Sargent's case had led him to believe that we are dealing with some kind of a vascular tumor. That it is insignificant in size or located far back in the orbit was shown by the bright illumination of the orbit by the ophthalmodiaphanoscope. From this instrument held in the mouth the light traversed the antrums, showing them to be clear, passed through the floor of the orbit, through the anterior ethmoidal cells, illuminating the tissues around the ball and the interior of the ball. No large or dense tumor could exist in the anterior part of the orbit that would not obstruct the light as it was transmitted to the observer's eye. The attachment for the illumination of the frontal sinuses

showed them also to be clear. The history of the case, the purely anterior proptosis, and the freedom of movement also militated against the diagnosis of a large or hard tumor.

Dr. Zentmayer thought that there was marked limitation of the outward and of the downward movements of the globe.

Dr. Holloway stated that this case suggested to him a patient who was under observation for a number of months at the University Hospital, and whose case history had been reported by Dr. de Schweinitz at the last meeting of the American Ophthalmological Society. This was a case of atypical pulsating exophthalmos, atypical in the sense that there was an absence of a bruit, and a subsequent operation showed the presence of a sarcoma of the orbit. Dr. Holloway felt that the symptoms present in the case under discussion were due to an orbital growth.

Dr. Risley thought that the symptom complex suggested a tumor of the optic nerve. If not that, a growth in the floor of the orbit extending to the apex.

#### **Ocular Complications in a Case of Impetigo Contagiosa.**

Dr. Howard F. Hansell recorded the case of a girl whose health was seriously broken down by typhoid fever, unwholesome food, and work. She confessed that while employed in a pickle factory she had devoured large quantities of pickles. The skin disease was distributed over almost the entire body, and consisted in the formation of pustules varying in size from that of a pea to a silver dollar. The ocular complications consisted in a chronic conjunctivitis with thickening and superficial vascular keratitis attended with the formation of ulcers. The course of the keratitis was variable but persistent. At one time the ulcerated area measured 4 mm. in diameter. The apices of the corneas were the centres of the inflammation. Here dense white patches of infiltration were always present and generally ulcerated. The opacity was densest at the apex and gradually shaded off into clear cornea before reaching the limbus. At no time were the irides involved, nor, so far as could be determined, the interior of either eye.

Dr. Leonard Frescoln stated that at one time preparation had been made to give the patient an intravenous injection of salvarsan, but a subsequent Wassermann test was negative. There are three skin conditions which give rise to ocular lesions—herpes zoster, often mistaken for erysipelas; pemphigus, a case

of which was shown here last year by Dr. Shumway; and impetigo contagiosa, of which this is a rare example, with ulceration of the cornea.

Dr. J. Albert Morgan (by invitation) stated that he would not attempt to add any additional remarks to those already made by Dr. Hansell; however, he would keep in touch with the patient and would make a subsequent report at the time of the patient's discharge from the hospital.

#### **Marginal Degeneration of the Cornea.**

Dr. Zentmayer presented a case of marginal degeneration of the cornea. The patient was a married Italian woman, aged forty-five years, apparently in good health. She was first seen six weeks ago, when she complained of headache and of an uncomfortable feeling in the eyes.

In the cornea of each eye there was a groove about 2.5 mm. broad and about 0.5 mm. deep just inside of the limbus, and involving, approximately, the upper half of the circumference. In the right eye the groove was broader and deeper, and at the nasal end of the furrow the floor was slightly bulging (beginning ectasia). By diffuse light it appeared almost transparent, but by oblique illumination, gray. Fine bloodvessels encroached upon it from the conjunctiva. The eyes were entirely free from evidence of inflammation.

The case was similar to, but more pronounced than, the one exhibited by Dr. Zentmayer at the Section last year.

Dr. Risley inquired if there was anything in the patient's general nutrition that might shed light upon the corneal condition.

Dr. Zentmayer said in reply that as far as the examination of the patient had progressed nothing of significance had been disclosed.

T. B. HOLLOWAY, M. D.,

*Clerk*

### **COLORADO OPHTHALMOLOGICAL SOCIETY.**

MEETING OF NOVEMBER 18, 1911, IN DENVER.

DR. WM. C. BANE, PRESIDING.

#### **Atrophy of Iris.**

Dr. Edward Jackson presented a patient, a woman aged 55, suffering from absolute glaucoma of about three years' standing. The glaucoma was primary, the media clear, and no other degeneration of the ocular tissues. About half the width of the iris, from the median line above along the nasal

one-third of the circumference of the pupil, showed loss of the anterior layer. And at the upper part shreds of this layer hung forward in front of the pupil, looking like persistent pupillary membrane. Other parts of the iris were dark brown. The denuded portion was a light yellowish gray, and showed a comparatively uniform fibrillated stroma. The sphincter of the iris seemed completely atrophic. Solutions of eserine produced not the slightest effect on the pupil. There was pain, but I did not wish to enucleate if I could avoid it.

**DISCUSSION.** Dr. Patterson thought in considering the pathology of the condition that there was the possibility of there having been an irido-cyclitis and that the glaucomatous symptoms were a sequence. Suggested chloride of calcium internally as recommended by Risley.

Dr. Walker had had a case of atrophy of the iris unaccompanied by glaucomatous symptoms.

Dr. Sisson suggested the use of subconjunctival injections of a solution of sodium citrate to control pain and reduce tension.

Dr. Sedwick said the case in which he had used sodium citrate injections, and which had been reported to the society had done well, eye was quiet and patient had had no pain or increase of tension in the past six months.

Dr. Jackson said, in closing, that a large proportion of the cases of atrophy of iris were associated with glaucoma. Would use injections of sodium citrate in this case.

#### **Congenital Dislocation of the Lenses.**

Dr. Jackson also showed a boy, aged 13, under observation five and one-half years, in whom both lenses were dislocated inward, and the right a very little downward; so that the temporal edge of each lens came behind the edge of the iris. The refraction through the lens was R. —.12, L. —.18. Alongside the lenses it was about H. 10 D. Vision at first had been brought up by correcting lenses to  $\frac{4}{12}$ ths partly. But it had now declined to  $\frac{4}{22}$ , and the boy could no longer go on with his school work, and some operation seemed necessary.

In a girl of 12, who had been watched four years, the lenses were dislocated downwards so that their upper margins were visible at the upper edge of a 5.5 mm. pupil. In this case vision had improved to  $\frac{4}{9}$ ths partly, with correcting lenses — 12 ( ) 2 cy.

In a third case, watched for three years, the lenses were dislocated inwards. The boy was 12 years old when first seen and in one eye vision was already reduced to perception of moving objects. In the other eye vision equaling 0.4 was obtained with a correcting lens —16 D. At one time, following a blow on the head, both lenses became dislocated into the anterior chamber; but were restored to position and subsequently retained behind the iris. The above cases were the only known instances of ocular defect in their respective families.

*DISCUSSION.* Dr. Spencer asked if in case an iridec-tomy was performed on the first patient would it be best to make it inward to get the benefit of the lens, or outward away from the lens.

Drs. Walker and Coover would needle in this case. Dr. Jackson had considered the various operations, but was inclined to extraction.

#### **Extirpation of Both Lachrymal Sacs.**

Dr. Chas. E. Walker presented a case in which he had removed both lachrymal sacs. The case was complicated by entropion and trichiasis and a double Hotz had been done with satisfactory results. No dryness or epiphora had followed the extirpation of the sacs so far.

*DISCUSSION.* Dr. Sedwick asked for the experience of the members present as to the presence of epiphora and dryness following sac removals.

Dr. Boyd had removed the sac in four cases. In each case epiphora persisted from four to six weeks following the operation then disappeared.

Dr. Spencer had removed the sac in three cases and had had no dryness. He had noticed that Müller of Vienna always removed the accessory lachrymal gland in these cases.

#### **Persistent Chronic Conjunctivitis and Keratitis Following Successful Hotz Operations for Entropion.**

Dr. Walker also presented a young man 36 years of age with a chronic conjunctivitis and keratitis in both eyes which had refused to disappear after the entropion had been completely relieved by Hotz operations. There were no granulations of the palpebral conjunctiva, but a congested thickened condition of the bulbar conjunctiva was present. Had tried all forms of treatment. Dr. Boyd suggested peritomy.



**An Unusual Form of Occlusion of the Nasal Duct.**

Dr. Wm. C. Bane made the following preliminary report.

B. R., aged 18, applied for treatment of chronic disease of right lachrymal sac. Epiphora had existed for several years. Muco-purulent secretion of the sac. A No. 5 Bowman probe passed the usual length, but could not be seen in the nose, though marked atrophy of the inferior turbinal existed. Fluid would not pass into the nose. Careful inspection of the nose with the probe in situ and rotated, revealed a movement of the tip of the probe covered with thickened tissue. Cutting away the thickened tissue liberated the tip of the probe and also permitted fluid to pass readily through the duct into the nose. There has followed marked improvement, yet owing to a chronic condition of the sac and duct the cure is not yet complete.

**Salvarsan in Atheroma of the Retinal Vessels.**

Dr. J. A. Patterson reported the case of a man 46 years of age, who had syphilitic infection twelve years ago, and which he claims was treated for a prolonged period in an eastern city. He came West two months ago in such poor physical condition that his physician has been trying by rest, diet and tonics to get him in condition for the administration of Salvarsan. The patient suffers from gastric crises absent patella reflexes, distinct Romberg symptoms. Pupils are slightly larger than normal, react sluggishly to light stimulus but prompt on convergence. Patient's mind seems sluggish and he looks ill. O. D. V. an occasional letter in 5, 20. In taking the field Bjerrum method, a lateral nystagmus was noticed which could not subsequently be elicited by rotation. No central scotoma could be found though he co-operated too poorly to make diagnosis certain. Color fields reversed, form not apparently contracted. O. S. V. 5/12.

Ophthalmoscopically O. D. had a pale nerve particularly temporal edge, an area of pale reflex above and below nerve as if there had been an exudation. There is an area nasal to disc giving a peculiar reflex as if the retina was wrinkled, there probably having been an oedema at that point. Retinal vessels have thickened coats and where veins and arteries cross above and in from disc there is an area of thick exudation.

O. S. The upper retinal vein just above disc is occluded by the artery which crosses it. The small macular vessels running horizontally on disc have markedly thickened coats. July 27, given full dose Salvarsan intravenously. Patient was not

seen again until August 7, when the improvement in the patient's general condition was very marked, the thickening of the retinal vessels greatly lessened, some areas of thickening previously seen could not be found. O. D. V. 5 12; O. S. V. 5 9. The patient's age is 46 and the Salvarsan was given with some hesitancy fearing that the patient had gone beyond the stage where it would be of any value. Patient has not been seen since the last mentioned date. But his family physician tells me he gave him another dose of Salvarsan on September 11th, at which time gastric crises had ceased and his station was much improved. The first dose was 0.40 and the second dose 0.45.

**DISCUSSION.** Dr. Marbourg had seen a case of double choked disc following a dose of Salvarsan given six months previously.

#### **Homonymous Diplopia with Erratic Position of Images.**

Dr. Patterson also reported a case in an adult where the right eye converged markedly. There was homonymous diplopia yet the patient who was an intelligent one, stated repeatedly that the diplopia became better (distance between objects became less) as the object of fixation was carried toward the right side. The right eye moved out with a halting jerky movement. V. with this eye was with correction + 1.25 cyl. ax. 90° 6/6. Left eye had some appearances which suggested choked disc yet there was the possibility that this might be due to the presence of opaque nerve fibers. Some tenderness over the right eye. The trouble came on with a severe pain in the parietal region. Etiological factors considered were hysteria or syphilis. Although patient denied latter was put on mercurial inunctions with the result that the diplopia disappeared.

#### **Central Lesion Causing Rapid Ocular Changes.**

Dr. Edward Jackson reported a case which had been brought into the hospital in delirium and suffering from sudden blindness. No reaction of the pupils; weakness of all the ocular muscles, and double ptosis. Nerve heads at this time appeared normal; no choked discs. Diagnosis; lesion in the region of the chiasm. At present six weeks from time first seen there is paralysis of the right external rectus and complete white atrophy of both nerve heads. Ptosis has pretty much disappeared. Patient improved under mercury for a time then became worse. Salvarsan was not given.

ELIOT O. Sisson, *Secretary.*

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting of the Society was held at the rooms of the Medical Society on Thursday, October 19. The chair was occupied by Mr. J. Bowring Lawford, the new president. The following cases were shown: By Mr. George Coats, two cases showing a small superficial opaque ring in the cornea. Mr. Coats thought that if it was not a deposit it must be a congenital opacity. He had seen another case of the same kind. Mr. Bishop Harman demonstrated a new photometer for school doctors, a portable and simple instrument whereby an exact knowledge of the amount of light existing in schools without relying on the uncertainties of personal estimates—could be obtained in candle power; that of the ordinary London sperm candle. Lieut.-Col. Pisani showed a case of cyst of the iris; and Major Mould a case of vaccine pustule in the eyelid. Mr. Greeves' case was one of tumor of the ciliary body, in which there was recurrence after removal. Neither caustics nor the application of CO<sub>2</sub> checked its growth. Dr. Greenfield showed a case of unilateral optic neuritis in a case of disseminated sclerosis.

After the formal presentation of Vol. XXXI of the Transactions, the president delivered his introductory address. After referring to his election as president, in a few graceful and grateful phrases Mr. Lawford proceeded to deal, in considerable detail, with the subject of vaccine therapy, passing in review the work of many continental and British investigators, and then went on to refer to their bearing on the treatment of eye diseases. He concluded by a reference to immunity, active and passive, and to the prospect of success in eye diseases. Sympathetically appreciative allusion was made by the president to the decease of Dr. Hughlings Jackson, one of the original members of the Society, and to the fact that he was one of the earliest physicians to insist on the importance of ophthalmoscopic examination in diseases of the nervous system. The president closed the reference by a warm eulogy on Dr. Jackson's personal and professional attributes.

The first paper was by Mr. J. S. Manson (Warrington), entitled "A Case of Hereditary Cataract," and was communicated by Mr. E. Nettleship. It was a case of hereditary lamellar cataract occurring in four consecutive generations, affecting thirteen persons (six males and seven females) and transmitted in all cases by females who were themselves affected. Three mem-

bers of the pedigree, in three different generations, had a congenital deformity of the little fingers, which appeared to have been independent of the cataract, for only one individual showed both the digital and lenticular abnormality.

The other paper was by Mr. Nettleship, and was entitled, "A New Case of Hereditary Night-Blindness." It was the form without ophthalmoscopic changes, in which the abnormality was associated with myopia, and descended, as in color-blindness and several other conditions, through females themselves normal. Twenty cases had been discovered in this extensive genealogy. Photometric records and field measurements of several were recorded; in one there was a partial ring scotoma. Several members of the pedigree were myopic without being night-blind, and several (some of them night-blind, others with normal sight) were mentally affected. There was only one consanguineous marriage in the entire pedigree.

C. D. MARSHALL, *Secretary.*

#### American Association for the Conservation of Vision.

American Association for the Conservation of Vision. This organization is inaugurating a widespread campaign of public education to call the attention of people to the care and preservation of their eyesight. The association has recently moved to new offices at 105 East Twenty-second street, New York City. A recent election of officers leaves the personnel as follows: President, Dr. F. Park Lewis, Buffalo; vice-president, E. L. Elliott; acting secretary, Douglas C. McMurtrie; acting treasurer, T. Cummerford Martin. Dr. Hiram Woods of Baltimore is on the board of managers, and Dr. George Lord de Schweinitz of Philadelphia is director of the department of diseases and defects of the eye. Among the publications of the association are its *Bulletin* and monograph series, the first of a popular, and the latter of a technical nature. The first issue of the *Bulletin* is entitled, "Conserving Vision," compiled by Douglas C. McMurtrie and edited by George Lord de Schweinitz, M. D., F. Park Lewis, Buffalo, M. D., Louis Bell, Ph. D., and E. Leavenworth Elliott. The first issue of the monograph series, edited by Douglas C. McMurtrie, is entitled "Ophthalmia Neonatorum in Ten Massachusetts Cities," by Henry Copley Greene. The association has now in press additional instructive booklets of a popular nature.

## THE VISUAL REQUIREMENTS IN THE PUBLIC SERVICES OF THE UNITED STATES.

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The following standards and directions for making usual tests for Pilots form part of Dr. Wm. Campbell Posey's article on "The Visual Requirements in the Public Services of the United States," (Jour. A. M. A., Aug. 13, 1910). These standards have been adopted by the Department of Commerce and Labor and the full report may be found in the Journal of the A. M. A., July 1, 1911.

### DIRECTIONS TO BE OBSERVED IN MAKING THE TEST FOR VISUAL ACUITY.

The examiner will observe that the Snellen charts used in the tests shall be exhibited to the candidate at a height of 4 or 5 feet from the ground and at a distance of 20 feet exactly, and this distance must be maintained throughout the test. A good light must fall on the chart, and during the tests charts with different lettering should be employed in such a manner that the candidate cannot become familiar with the letters on the various lines. Each eye should be tested separately by carefully excluding the eye which is not being examined by holding a card before it. No pressure should be exerted nor should the excluded eye be closed.

As soon as the examiner has ascertained the lowest line which the candidate has been able to read, the vision shall be recorded in the form of a fraction, the numerator of which will represent the distance at which the test was made, i. e., 20 feet, the denominator the number on the chart opposite the last line which was read. The fellow eye is now similarly tested. During the performance of the test, the lids must remain naturally open, squinting being prohibited. In the event that the candidate is unable to read all the letters on the line designated as his minimum vision, he will be passed, provided he is able to read three of the letters on the next smallest line with both eyes directed on the chart.

### DIRECTIONS TO BE OBSERVED IN MAKING THE TESTS FOR COLOR-SENSE.

The wools should be carefully kept in the boxes provided for the purpose, except when in use in examinations, in order that they may not become faded or dirty.

The test should be made only by daylight and never when the weather is very dark or foggy.



A properly assorted set of wools consists of 3 large test skeins, of a light pure green, rose pink and red, respectively, and of 150 small skeins of the following colors: red, orange, yellow, yellow green, pure green, blue green, blue, violet, purple, pink, brown and gray. In addition, there are several shades of each color and a number of gradations of each tint from the deepest to the lightest.

*Test 1.* After the entire set of wools has been spread out on a table before the candidate, the examiner places the large green test skein at a distance of about two feet from the other colors, and asks the candidate to select from the heap of colors all that look to him like this test skein, and place them beside it. No names should be mentioned in connection with any color in the above-worsted test, which should be based only on a comparison of colors. The candidate should be made to understand that he is not expected to find an exact match for the test skein, but that he is to choose all the colors that appear to him of the same general color as the test skein, both those that are lighter and those that are darker in shade. If he does not easily understand what is wanted, let the examiner himself select the colors; then, having returned them to the general heap and mixed them thoroughly with the rest of the colors, let him call on the candidate being examined to repeat the selection. This demonstration will not enable a candidate who is defective in his color-perception to select the colors correctly, and he may pick out, as looking to him like the large test skein, some greens and also some of the gray or brown confusion colors, which will appear to him of the same general color as the test skein only varying from it in shade.

A person with a normal color-sense will pick out the lighter and darker shades of green rapidly and without hesitation. He may, perhaps, include in his choice a few green skeins inclining to yellow or blue; but this is no evidence of color-blindness, but rather of a lack of practice with colors. The completely color-blind, whether to red or green, will select, with or without greens, some confusion colors—grays, drabs, stone-colors, fawns, pinks or yellows. The incompletely color-blind, or those with a feeble chromatic sense, will add to the selection of greens one or more light fawns or grays; or they may pick out a skein, hesitate, add it to the greens and then withdraw it, and so on.

When confusion colors have been selected, we know that the candidate is either completely or incompletely color-blind. In order to determine its nature and degree we employ a second test.

*Test 2.*—Return all the colors to the heap and mix them together. Place the rose test skein apart from the rest, and have the candidate select, as before, all the colors that look to him like this skein.

The color-blind will always select deeper colors, i. e., either the light or deep shades of blue and violet. The completely red-blind will select blue or violet, either with or without purple. The completely green-blind will choose green or gray either with or without purple.

A candidate who is proved color-blind by the first test is only incompletely color-blind if he matches the rose with deeper purples alone.

*Test 3.*—This test is merely supplementary to the two preceding and consists in separating the red skein from the rest of the wools. The red-blind will select, besides the red, green and brown shades darker than the red. The green-blind will select green and brown shades lighter than the red. Only persons with marked color-blindness manifest their defect with this test.

*Williams Lantern Test.* Turn the rheostat so as to have a medium illumination from the two incandescant lights in the lantern, or, if an electric current is not available, light both lamps, taking care not to turn them up so high as to smoke, then place the lantern 20 feet from the person to be examined about on a level with his head, the side of the lantern carrying the disc with the colored glasses directly toward him, and darken the room. Place the shutters so that three lights are shown at one time through either the largest or the medium openings, turn the disc slowly, and have the person examined call aloud the names of the colors as shown, designating them thus, "middle red, right red, left green," etc. Under each color is a distinguishing number which is lighted at the same time as its color, and as the examination proceeds the examiner will note the number of the color shown and the name given to it.

After all the combinations with three colors at a time have been shown, change the shutters so as to show one or two lights at a time and revolve the disc again, noting the results as before.

Calling a green light blue, or *vice versa*, calling a yellow red, or with the smallest opening failing to see the color of No. 7 (cobalt blue) which transmits less light than some of the others, will not be considered serious mistakes, but the confusion of red or green with each other will reject.

## NEWS ITEMS.

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. Peter Callan of New York has been very ill with pneumonia. He is now recovering, but has given up clinical work.

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Dr. Myles Standish of Boston will give a public lecture on "The Care of the Eyes" as part of the Harvard medical school series, which will be inaugurated January 7.

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Dr. Willard Newton Smart of San Diego, Cal., an ophthalmologist and formerly acting assistant surgeon United States marine hospital service, died October 23, aged 62 years.

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Sir Jonathan Hutchinson of London, and Dr. Landolt of Paris, have been elected to honorary membership in the Ophthalmological Society of the United Kingdom.

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Wanted—Dr. Charles H. Francis, 32 North State street, Chicago, will pay \$2.00 for one copy of the 1905 edition of the Transactions of the Section of Ophthalmology of the American Medical Association.

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Mr. Henry Kimpton, 263 High Holborn, London, W. C., England, has in stock a good copy with all the colored plates, of G. Lindsay Johnson's Comparative Anatomy of the Mammalian Eye, which he will sell at the very moderate price of \$10.00, plus 25c for postage.

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At a meeting of the College of Physicians of Philadelphia, held January 3rd, Dr. George E. de Schweinitz was chosen president; William Zantmayer was placed on the committee of publication; and Alexander Randall chosen a member of the hall committee.

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The first special course in ophthalmology to be given by the University of Colorado, in Denver, will begin June 23 and extend to August 22, 1912. The instruction will be open to all graduates

of accredited medical colleges. But those desiring to take a degree will be required to show one year of work in an eye clinic, besides a certain amount of mathematics and physical optics, an acquaintance with the literature of ophthalmology, and to pass an examination.

The Pocket Atlas of the Fundus Oculi, the text of which was written by G. Lindsay Johnson, M. A., M. D., F. R. C. S., with drawings from life by Arthur W. Head, F. Z. S., can be purchased from F. A. Hardy & Co., 10 S. Wabash avenue, Chicago.

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The following is a recent announcement sent out by Landolt's Eye Clinic, 27 Rue Saint Andre des Arts, Paris.

Dr. Edmond Landolt: Operations on Wednesdays and Saturdays, followed by clinical and theoretical lectures with demonstrations of cases at 12:30 p. m.

Dr. Marc Landolt conducts courses on Anatomy, Pathology, Pathological anatomy, refraction, the ocular-motor systems, operations, etc. (Days and hours arranged to suit the students.)

The seventeenth annual meeting of the American Academy of Ophthalmology, and Oto-Laryngology will be held in Niagara Falls, Ontario, Tuesday, Wednesday and Thursday, August 20, 21, 22, 1912. More than half of the 450 members who responded to the postal card vote, have so chosen. This date is during the week following the International Otological Congress in Boston. Thus ample time is allowed for members and guests to get from the Congress to the Academy.

Headquarters and meetings will be at the Hotel Clifton on the Canadian side.

Herr. Pro. Anton Elschnig, of Prague, will be the guest of the Academy and deliver the address. This announcement alone, insures a large attendance. Prof. Elschnig's name is too well known to all medical men of whatever nation, to need further comment.

The forecast of subjects and readers insures a strong and well balanced program. In both sections there will be comprehensive "City" symposia on live subjects of acute interest. To facilitate ready co-operation, the readers will be chosen so far as is possible from the same city or locality.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Pol.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.) C. H. Francis (Pol.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Tusey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (P.&S.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P.&S.) E. K. Findlay (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findlay (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findlay (P.&S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Rush) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)	H. H. Brown (Ills. Med.)	*T. E. Harper (P.&S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pusey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.	Chicago Clinical School,	County: Cook County Hospital, W.	Pol.: Chicago Polyclinic and Hospi-	Rush: Rush Medical College, W
819 W. Harrison Street.		Harrison and Honore Streets,	tal, 174 E. Chicago Avenue,	Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose		Ills. Med.: Illinois Medical College,	P.G.: Post-Graduate Medical School	St. Luke's: St. Luke's Hospital, 1410
and Throat College, Washington		182 Washington Blvd.	of Chicago, 3400 Dearborn Street.	Indiana Avenue.
Franklin Streets. Clinics all day.		Inf.: Illinois Charitable Eye and Ear	N. W. U.: Northwestern University,	
		Infirmary, Peoria and Adams Streets.	2431 Dearborn Street.	



# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

Vol. XXI

CHICAGO, MARCH, 1912

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## ORIGINAL ARTICLES.

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### THE INFLUENCE OF ELECTRIC, ACETYLENE AND OIL HEADLIGHTS UPON NIGHT OPERATION OF TRAINS AND TRAIN SIGNALS.

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BY JOHN RAY NEWCOMB, M. D.

Associate Professor of Physiology, Indiana University School of Medicine, Clinician in Eye Clinic City Dispensary; Member of American Academy of Ophthalmology and Oto-Laryngology, Indianapolis Medical Society, etc.

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The experiments hereinafter briefly outlined were made at the request of the legal departments of the various railroads of the State of Indiana, to furnish additional facts for use in the case now pending in the Federal Court, the B. & O. Railroad vs. The Indiana Railway Commission, which hearing took place in Indianapolis, Indiana, in the latter part of 1910, the decision on which has not yet been rendered.

These tests were made on a section of double track and siding near the station of the C. C. C. & St. L. R. R. Co. at Avon, Indiana, on the nights of September 13, 14 and 15, 1910. The complete series of tests was divided into the four following groups:

**First Group:** Observations were made consisting of the photometric calibration of all the headlights used in the tests: this calibration was made by the railroad company's experts and was checked by the Bureau of Standards, Washington, D. C.

**Second Group:** Tests consisting of observations of certain arrangements of block and other signals, unknown to the observers and made under various conditions of opposing and approaching headlights. The observers rode in the observation car ahead of the engine. Stops for observations were made at previously measured distances from the signals to be observed.

**Third Group:** Tests made under somewhat similar condi-

tions except that the observers rode on an observation locomotive on which runs could be made at any desired speed. This locomotive was equipped with a proper speed recorder (for determining the approximate speed at which the locomotive operated) and each observer was equipped with a stop watch to make time observations, starting his watch when the signal was first seen and stopping it when passing the observed signal.

**Fourth Group:** This group consisted of observations of the maximum distance at which an obstruction on the track could be seen, located and identified. Also, photographs were taken, the electric headlight constituting the source of light, to determine the difference between that which is visible to the observer and the camera.

The equipment used for the experiments was furnished by the New York Central Lines and the Pennsylvania Lines; the headlights being furnished from the equipment of the C. C. C. & St. L. R. R. Co.; the observation car by the Pennsylvania Lines, and the observation locomotive by the L. S. & M. S. R. R. In the photometric calibrations a Sharp Miller photometer was used. The front end of the observation car was open, seats were elevated from front to rear of the car, thereby providing an unobstructed view of the track and signals to all the seated observers. The car was equipped with incandescent lamps which were lighted only when necessary to make record on log sheets furnished for each observation, being extinguished as soon as observations were recorded. The observation locomotive was equipped with plate glass front windows, this being necessary owing to the high speed at which the locomotive was run. The signal lanterns, signal lights and classification markers were a part of the regular equipment of the C. C. C. & St. L. R. R. Co. and were in their usual working condition. It was required that each of the observers pass the prescribed visual tests as conducted by the visual examiner of the C. C. C. & St. L. R. R. Co.

#### FIRST GROUP.

No detailed report on the method of making the photometric calibrations is deemed necessary in this article, as these findings have no direct bearing on the results of the observation tests.

#### SECOND GROUP.

Tests 1-A, 1-B and 1-C, observations No. 12, 13 and 23. Conditions: Observers in car reading semaphore signal during stops at various stations. Observation No. 12, electric headlight on observation car, electric headlight on opposing locomotive.

Observation 13, electric headlight on observation car, electric headlight on opposing locomotive. Observation No. 19, electric headlight on observation car, acetylene headlight on opposing locomotive. Observation No. 23, electric headlight on observation car, oil headlight on opposing locomotive.

These observations demonstrated that with an electric headlight on the observation car and opposed by an electric headlight, the average observer could see the signals correctly at about 2,200 feet; that when opposed by an acetylene headlight signals could be seen at about the same distance, but when opposed by an oil headlight the average reading of these signals was at 3,150 feet, or at an increased distance of forty-three per cent. It was also shown that when opposed by an electric headlight, hand signals could not be seen as far as block signals by 800 feet.

With the observation car equipped with an acetylene headlight and opposed by an electric headlight, the tabulated report shows that the average observer could see the signals correctly at a little over 600 feet. With this same headlight opposed by an oil headlight the signals could be read at 3,100 feet, and with no opposing headlight 2,100 feet. As is the case in the above paragraph when an electric headlight is carried on the observation car, the signals could be seen at a greater distance when opposed by an oil headlight than when opposed by an electric headlight. This increased distance amounts to 369 per cent in the case of the acetylene headlight on the observation car.

Test 9-A, observation No. 4. Conditions: Observers in car reading semaphore and hand signals during stops at various stations. Signals actually displayed: Semaphore, upper right, green; lower left, red. Oil headlight on observation car and opposing electric headlight. Average distance correct reading, 2,535 feet.

Test No. 9-A, observation No. 5. Conditions: Same as observation No. 4. Signals actually displayed: Semaphore, upper left, red; upper right, green; lower left and right, red. Hand signal, proceed. Oil headlight on observation car, opposing electric headlight. Average distance for correct reading of hand signal, 1,262 feet; of block signal, 2,560 feet.

Test No. 9-A, observation No. 6. Conditions identical with observation No. 4, except that four red lights were displayed in semaphore. Average distance for correct reading of semaphore signals, 2,900 feet.

Test No. 9-D, observation No. 1. Conditions as above. Sig-

nals actually displayed: Semaphore, all red except upper right semaphore light, which was extinguished. Oil headlight on observation car and no opposing headlight. Average distance for correct reading of semaphore, 3,431 feet.

Test No. 9-D, observation No. 2. Conditions as in observation No. 1, except signals actually displayed: Semaphore, upper left, green; upper right, red; lower left, red; lower right, out. Hand signal, proceed. Average distance for correct reading of semaphore signals, 2,155 feet; of hand signals, 2,552 feet.

Test No. 1-C, observation No. 23. Conditions as above. Signals actually displayed: Upper and lower left, red; upper and lower right, out; no hand signal. Electric headlight on observation car and opposing oil headlight. Average distance for correct reading of signal, 3,160 feet.

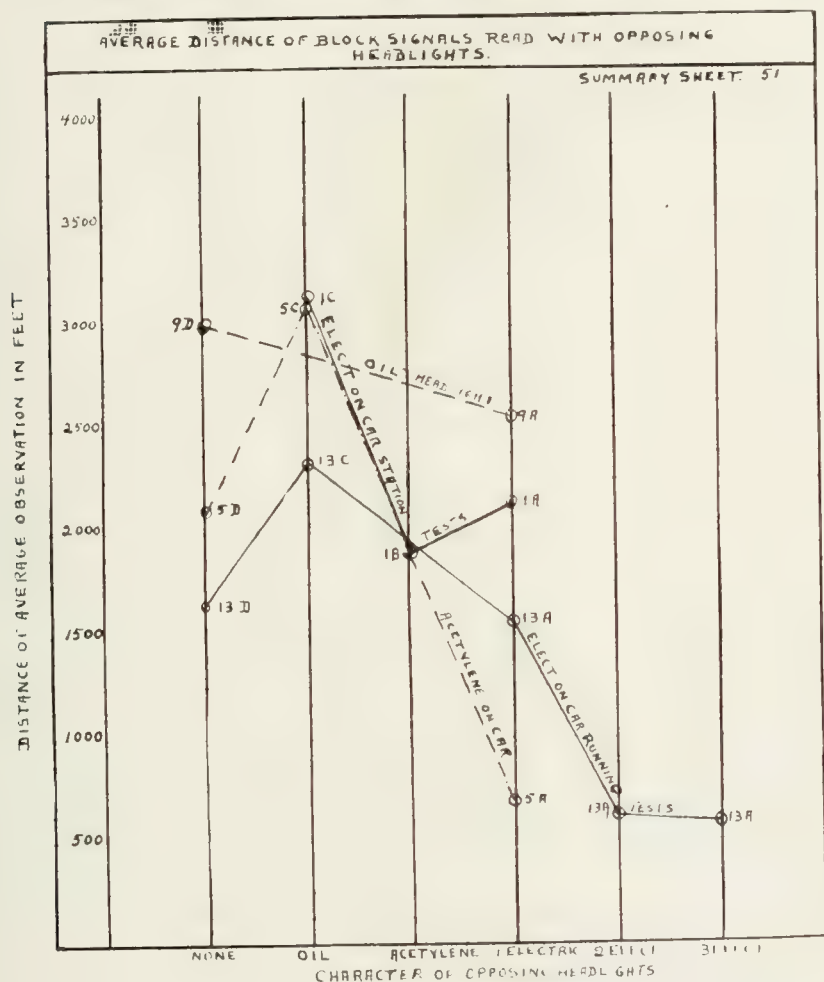
Test No. 5-D, observation No. 25. Conditions as above. Signals actually displayed: Semaphore, upper left and right, green; lower left and right, red; hand signals, none. Acetylene headlight on observation car and no opposing headlight. Average distance for correct reading of signals, 2,100 feet.

Observations Nos. 4, 5 and 6, with oil headlight on observation car, opposed by an electric headlight, show that the average observer can read block signals at 2,535 feet, for observation No. 4, 2,560 feet for observation No. 5, and 2,900 feet for observation No. 6. These distances being greater than in either the tests of 1-A or 5-A, and when the observation car thus equipped is opposed by no headlight signals can be correctly read at 3,431 feet, as seen by test No. 9-D observation No. 1, and at 2,155 feet as seen from test 9-D observation No. 2. As in the case where observation car was equipped with electric and acetylene headlights, block signals could be read at a greater distance with no headlight than opposed by an electric headlight.

From test 9-D, observations Nos. 1 and 2, in which the signals could be correctly read at 3,431 feet and 2,155 feet respectively, it is to be noted that these distances do not exceed the distance at which signals could be correctly read when opposed by an oil headlight, as is the case with test No. 1-C, observation No. 23, in which the average distance at which signals could be read was 3,160 feet, and test 5-C, observation No. 25, in which signals could be correctly read at 2,100 feet, thus determining the fact that the oil headlight had no more blinding effect when reading fixed signals than when no headlight is opposing the vision.

On the following summary sheet, No. 51, is shown graphic-

ally the combined average of distances at which the block signals were read with the various opposing headlights. The points indicated on these diagrams are made up of the average of all the observations made under each test. These curves show beyond



dispute that the oil headlight has less influence on opposing vision to the block signals than either the electric or acetylene headlights under tests.

In test No. 9-D, observation No. 2, no headlight opposing, it is shown that hand signals can be correctly read at an average distance of 2,552 feet, but when the hand signals are opposed by an electric headlight, as in test 1-A, observation No. 13, this



distance is reduced to 1,587 feet. In other words, with no opposing headlight, hand signals can be read at sixty-one per cent greater distance than with an opposing electric headlight.

#### READING OF CLASSIFICATION SIGNALS.

Test 4-A, observation 14. Conditions: Observers reading classification lamps on approaching locomotive at varying distances. Electric headlight on observation car opposed by electric headlight. Green classification light, average correct reading, 404 feet; white at 704 feet.

Test 8-A, observation 27. Conditions as above. Acetylene light on observation car opposed by electric headlight on approaching locomotive. Classification lamps displayed, green and green. Average correct reading of classification lights at 223 feet.

Test 12-A, observation 8. Conditions: Observers in car reading classification signal lamps during stops at various stations. Oil headlight on observation car opposed by electric headlight on approaching locomotive. Classification lamps displayed green and green. Average correct reading of these classification signals at 412 feet.

Test 4-B, observation 20. Conditions: Observers in car reading classification signal lamps during stops at various stations. Electric headlight on observation car opposed by acetylene headlight on approaching locomotive. Classification lamps displayed, white and white. Average correct reading of these classification signals at 1,864 feet.

Test 8-C, observation 30. Conditions: Observers in car reading classification signal lamps during stops at various stations. Acetylene headlight on observation car opposed by oil headlight on approaching locomotive. Classification lamps displayed, green and white. Average correct reading of these classification signals at 985 feet.

Tests 4-A, 8-A and 12-A, observations 14, 27 and 8, respectively, show the average distance at which observers could read correctly the classification signals when opposed by an electric headlight, with electric, acetylene and oil headlights respectively, on the observation car. The average of these three observations shows the distance to be 360 feet, as shown in plot 7 on summary sheet No. 53.

When the classification signals were opposed by acetylene headlight, with electric headlight on observation car, as in test 4-B, observation 20, the classification signals could be read at an

average of 1,864 feet. In test C, observation 30, with an acetylene headlight on observation car opposed by oil headlight on approaching locomotive, their classification signals could be read correctly at 985 feet. This is plotted graphically in plot 7 on summary sheet No. 53. Comparing the oil and electric headlight it is seen by this plot 7 that the classification signals can be properly read at 38 per cent of the distance when opposed by electric headlight as compared with opposition by the oil headlight.

This series of classification signal readings was followed by an interesting series of tests, determining the approximate distances at which obstacles on the track could be observed, located and identified, varying arrangements of headlights being employed.

Test 2-A, observation 17. Conditions: Observation car approaching obstacle at various determined distances for observation. The obstacle actually displayed was two dummies in overalls, one piled upon the other. Electric headlight on observation car with no opposing headlight. According to the records these dummies were observed at an average of 736 feet, located at 485 feet, and identified at 104 feet.

Test 10-A, observation No. 3. Conditions: Observation car approaching obstacle at various determined distances for observation. The obstacle actually displayed was a hand car with two dummies on it. Oil headlight on observation car and no opposing headlight. Average distances: observed at 252 feet, located at 176 feet and identified at 95 feet.

Test 2-B, observation 16. Conditions: Observation car approaching obstacle at various determined distances for observation. The obstacle displayed was a combination car. Electric headlight on observation car with an opposing electric headlight. Average distances: observed at 1,797 feet, located at 1,360 feet and identified at 1,124 feet.

Test 10-B, observation 7. Conditions: Observation car approaching obstacle at various determined distances for observation. The obstacle actually displayed was a combination car. Oil headlight on observation car with an opposing electric headlight. Average distances: observed at 784 feet, located at 687 feet, identified at 598 feet.

Test 6-B, observation 28. Conditions: Observation car approaching obstacle at various determined distances for observation. The obstacle actually displayed was a box car. Acetylene light on observation car with an opposing electric headlight.

Average distances: observed at 185 feet, located at 185 feet and identified at 180 feet.

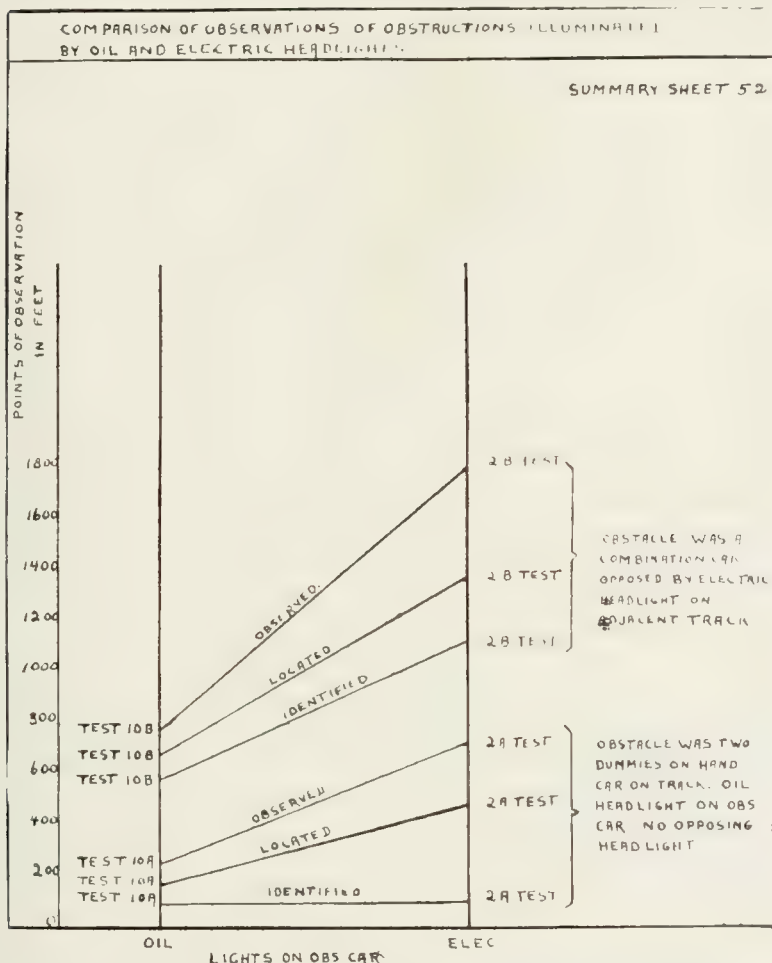
In tests 2-A and 10-A, observation 17 and 3 respectively, the data are directly comparable in that the same general character of obstacle was used, namely: Two dummies on the track in test 2-A and two dummies on the hand car in test 10-A. In test 2-A, in which electric headlight was on the observation car, it is shown that the average observer could see the obstruction at 736 feet, located at 485 feet and identified at 104 feet, and when oil headlight was on observation car the obstacle was observed at 252 feet, located at 176 feet and identified at 95 feet respectively; or in other words, these small objects were observed 2.92 times as far with electric light as when illuminated by the oil light, but they were not *identified* at any greater distance under the light of the electric headlight than with the oil light.

In test 2-B, observation 16, and test 10-B, observation 7, in which a passenger car constituted the obstruction, the observation car being opposed by an electric headlight, the average observer observed the obstacle when the observation car was equipped with electric headlight at 1,797 feet, located it at 1,360 feet and identified it at 1,124 feet, whereas when the observation car was equipped with an oil headlight, with the identical obstruction similarly arranged, it was observed at 784 feet, located at 687 feet and identified at 596 feet. In this case the electric headlight on the observation car permitted the observers to note the obstruction at a distance 2.29 times as far as when the observation car was equipped with an oil headlight, and to identify it at approximately twice the distance.

The only obstruction test made with acetylene headlight on observation car was test 6-B, observation 28, in which a box car was used as the obstruction with an electric headlight opposing the observation car. In this test it is shown that the average observer did not observe, locate or identify the box car as readily as when the combination car was illuminated by an oil headlight. This difference is accounted for by the fact that the combination car reflected light to a greater extent than did the box car, and therefore test 6-B cannot be thoroughly compared with the other observations.

On summary sheet No. 52 is graphically shown the comparison of observations of obstructions illuminated by oil and electric headlights. It will be observed from this sheet that with an electric headlight on the observation car and an electric head-

light opposing the vision, the passenger car, which represents as large an object and one with as much reflective power, owing to its varnish finish and glass door, as would probably ever occur, could only be observed at 1,800 feet and not identified until



within 1,120 feet. One thousand eight hundred feet therefore represents the maximum at which a large object could be observed under these conditions.

By reference to summary sheet No. 53, plots No. 1, 2 and 3, which show the relationship of distances in standing and running tests, it will be seen that under running conditions this distance of 1,800 feet would be reduced to 1,400 feet (plot 5). This latter distance is too short to stop an average train running at sixty

miles per hour, as noted on plot 4. In other words, the sole benefit that the electric headlight on the observation car would provide is that the obstacle would be struck at a somewhat reduced speed, and similarly following the data through for small objects, it is manifest that small objects, when illuminated with an electric headlight, would be struck at high speeds.

Following the tests described for the observation of obstacles on the track, experiments were conducted to determine the accuracy with which the observers could determine or estimate the distances of approaching locomotives equipped with oil, acetylene and electric headlights. The findings in these experiments demonstrated most clearly the impossibility of even approximately estimating the distance of an approaching locomotive. The following table will briefly illustrate this point:

	Oil	Electric	Acetylene
Minimum estimate .....	1,500 ft.	1,200 ft.	1,000 ft.
Actual distance .....	3,500 ft.	3,500 ft.	3,500 ft.
Maximum estimate .....	7,200 ft.	6,500 ft.	8,000 ft.

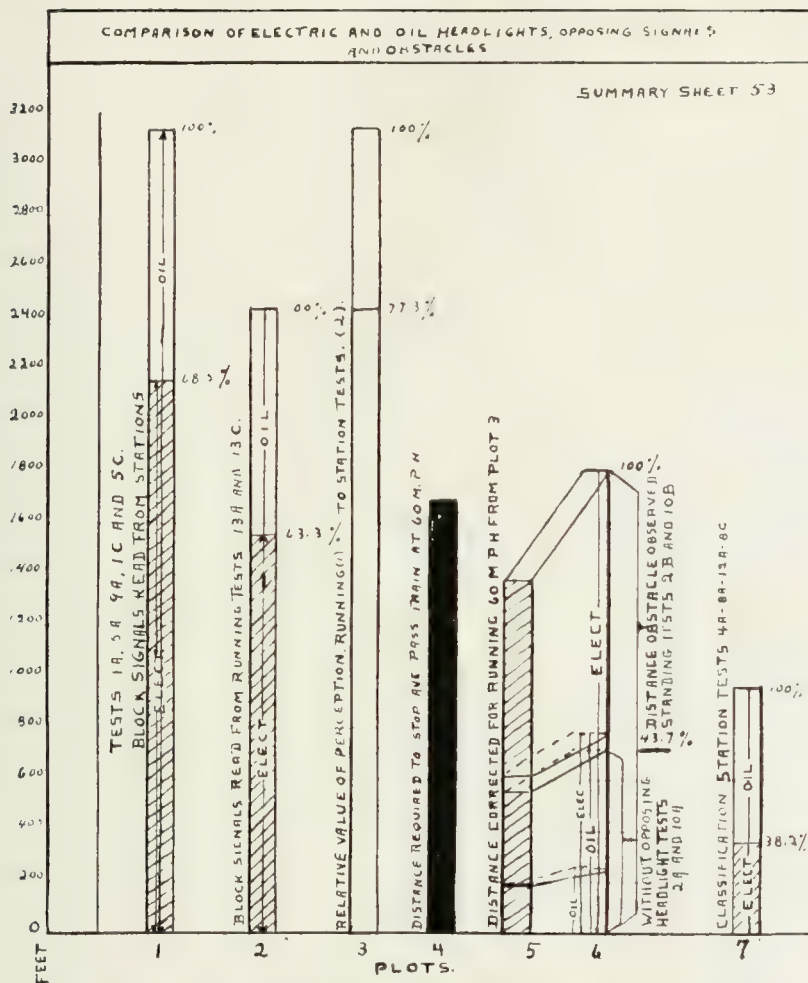
The observers then took up the position where they were screened from the direct rays of the headlight and were instructed to note when they were first able to see illuminated objects or the track, the locomotive stopping at various distances for this observation. This illumination was first seen when the track was illuminated by electric light located 4,000 feet from the observers, with the acetylene 1,350 feet, and the oil headlight at 1,078 feet. The observations with the acetylene light were valueless owing to the bright moonlight which prevailed at the time of observation, whereas the observations with electric and oil headlights were made on cloudy nights. These observations indicate that the electric headlight will illuminate the track about four times as far as the oil.

Test 13-D, observation 33. Conditions: Observers in observation locomotive reading semaphore signals while running at twenty-five miles per hour. Electric headlight on observation locomotive with no opposing headlight.

The average time elapsing between the first observation of four lights on the home signal and the instant of passing same was 18  $\frac{1}{5}$  seconds, which represents a distance of 666 feet. In this test the upper right hand signal light was extinguished with green roundel in front of the lamp; the other three lamps were displaying red signals. The observers were supplied with stop watches and were instructed not to start their watches until four



lights were observed, nevertheless thirteen out of sixteen observers started their watches, indicating that they saw four colored lights and made record of these four lights in spite of the fact that the upper right hand light was not burning. The



light which they saw was caused by reflected light from the electric headlight. This reflected or phantom light was recorded as green, the color displayed for "proceed" indication, whereas the aspect displayed was "stop," or the danger signal. The average distance at which this false signal was seen was 666 feet, calculated from the average time taken by the stop watches. This shows that a large majority of the observers misread this signal

as the light out constituted the danger signal, whereas the green which they observed was the "proceed" signal.

Test 13-D, observation 34, was a repetition of observation 34, except that four signals were displayed and the speed obtained by observation locomotive was thirty instead of twenty-five miles per hour, as desired. The signals were set the same as in 13-D observation 33, but with all lights burning. The average observer noted the four signals at 2,666 feet, which distance is much greater than in the case of observation 33.

These two observations show that without an opposing high candle power light, signals with an electric headlight approaching can be correctly read within a safe distance, *provided* the signal lights are burning.

When there was an oil headlight on the observation car, as in test 9-A and 9-D, no false signals were observed.

With an electric headlight on the observation locomotive, test 13-A, observation 37, was conducted to show the average distance at which the four signals could be observed with one opposing electric headlight; test 13-C, observation 36, with one oil headlight opposing; test 13-D, observation 35, with no headlight opposing; test 13-A, observation 39, with two electric headlights opposing, and test 13-A, observation 40, with three electric headlights opposing. All of these tests were run under the same conditions, the speed being approximately sixty miles per hour. The greatest distance at which the signals could first be seen with the oil headlight opposing the signals, the distance being estimated from the time, was 2,429 feet, and the distance at which the signals could first be seen with three electric headlights opposing was 600 feet. The other readings were between these two extremes. The comparison as shown graphically on summary sheet No. 51, and gives the average distance at which block signals can be read with and without various opposing headlights. The curve marked "electric headlight on car running test" shows the disadvantage of opposing high power lights.

Test 14-A, observation 41. Conditions: Observation locomotive passed one green distance signal, then a semaphore, and then an advance signal and rear end of train on north siding. An opposing engine with an electric headlight stationed near each signal. Observation locomotive carried electric headlight. Speed sixty-two miles per hour.

In this test an electric headlight was on the observation locomotive which passed, at sixty two miles per hour: first, a

distance signal opposed by an electric headlight; second, the home signal, opposed by an electric headlight; third, the advance home signal, opposed by an electric headlight, and the rear of a train on the north siding, provided with markers. All of the observers with the exception of four, could see the aspects displayed. One observer failed to see the advance signal and rear end of train on north siding, and three observers failed to see the rear of train on north siding, although they had been advised to observe something on north siding.

The purpose of this test was to represent conditions prevailing in dense traffic districts where signals are comparatively close together and where there are likely to be numerous opposing trains. This test demonstrated the likelihood that some of those signals under such conditions might be missed, and that there is an opportunity for error in reading the signals.

Test 3-A, observation No. 18. Conditions: Observation car with electric headlight headed west and standing at station.

The observers' notes indicated that an average of 6.48 telegraph poles were observed in the field illuminated by the electric headlight. Other landmarks, such as clay spots, white posts and stakes, were visible to some of the observers as noted on the summary chart. By comparison with the photograph it is readily noted that photograph shows over seventy per cent more objects in the distance than were noted by the observers. The exposure necessary to obtain a clear negative was in excess of two hours.

#### CONCLUSION.

The briefly described tests and observations permit, without fear of contradiction, the following assertions:

The electric headlight interferes with correct reading of signals when opposing the vision. (Tests 1-A, 1-B and 1-C, 5-A, 5-C and 5-D, 9-A and 9-D, 4-A, 8-A and 12-A, 4-B, 8-C, 2-A, 10-A, 10-B, 15-A, 15-B, 15-C, 16-A, 16-B and 16-C, 13-D, 13-A, 13-C, 13-D, 14-A.)

When the vision is opposed by high power headlight the distinctness with which the signals can be observed varies with the lateral distance of the signal from the headlight, greater interference taking place with high candle power headlight and tapering off to no interference with oil headlights. (Summary sheet No. 53.)

In the cases of electric headlights the interference was so great that the average distance at which the signals could be correctly read was reduced to such an extent that high speed

trains under the usual air line pressure, would not have been able to come to a full stop before reaching the signal. (Tests 9-A and 9-B, observations Nos. 4, 5 and 6.)

High candle power headlights on approaching trains have no influence on the accuracy with which signals may be read, provided there are no opposing headlights of high candle power and the signal lights are burning properly. (Test 13-D, observation No. 34.)

If any of the signal lights are not burning, false signals are obtained with the high candle power lights which are apt to be read as true signals. The zone of these false signals obtained with the electric and acetylene headlight approaching signal is situated between 1,500 feet and 400 feet from the signal.

With approaching oil headlights no false signals are obtained. (Tests 9-A and 9-B.)

With acetylene and electric headlights, representing a high candle power headlight, false signals were obtained. (Summary sheet No. 54.)

None of the headlights tested sufficiently illuminated the track to avoid striking small objects and for large objects would result only in being able to reduce the speed at which they would be struck. (Summary sheet No. 53, plot Nos. 1, 2, 3, 4 and 5.)

Only the electric headlight sufficiently illuminates the track to warn of its approach to an observer when the observer is screened from the direct rays of the locomotive headlight and is looking across the tracks. (Tests 16-A, 16-B and 16-C, observations 22, 32 and 11.)

It is difficult to make an approximate estimation of the distance of any of the headlights tested from the observer, when in their direct rays. (Tests 15-A, 15-B and 15-C, observations 21, 31 and 10.)

A photograph made of the field illuminated by an electric headlight, exposed for a period greater than two hours, shows over seventy per cent more range than can be seen with the human eye.

The tests herein described have been briefly summarized from the detailed reports, for the use of which I am indebted to Mr. H. F. Houghton, General Superintendent, C. C. C. & St. L. Railway.

In addition to the prescribed tests a request was made that all observers make note of any untoward effects which the prolonged exposure to opposing electric headlight might produce

upon their eyes. Several of the observers made note of the existence of negative after-images and symptoms typical of retinal fatigue. No endeavor was made to accurately determine the presence of after-images or retinal fatigue, as this was obviously beyond the scope of these experiments and would have been without value. The experiments were carried out in the most exact and scientific manner and are beyond criticism so far as fairness and honesty of purpose are concerned. Of the thirty observers present on these tests all, with the exception of three or four, were men with technical education and qualifications. The influence which this training and knowledge had upon the observations is obvious. The writer then having no official connection whatever with any railway, feels that he may assert without bias that the tests as conducted prove beyond question that from the viewpoint of safety the oil headlight is far superior to the deceptive, blinding and confusing, intense light of the electric headlight.

614 Hume-Mansur Bldg., Indianapolis, Ind.

### A NEW KNIFE.

BY FRANK BRAWLEY, M. D.

CHICAGO.

Having experienced difficulty in dividing thickened lens capsule and in iridotomy I devised the knife illustrated below.

The blade is the same size as Zeigler's knife, but the point is more strongly curved and is very sharp so that it may easily be stabbed through the iris or lens capsule. The remainder of



A—Natural Size.

B—Enlarged to Show Detail of Blade.

the blade edge is sinuous, the better to hold the iris fibers while the incision is being made with a sawing motion. The knife should be introduced somewhat as though it were a sharp hook, as the curved point makes direct introduction impossible.

The knife was made for me by V. Mueller & Co., Chicago, who tell me that it is a very difficult knife to grind, a special grooved stone being required.

7 W. Madison street.



## DEFINITE RESECTION OF THE OUTER ORBITAL WALL.

By H. GIFFORD, M. D.

OMAHA, NEBRASKA.

Illustrated.

In attempting to do the classical Krönlein's operation, the formation of a neat wedge of bone, such as the pictures show, has always been, for me, difficult, or to be exact, impossible. The bone has broken off before the spheno-maxillary fissure was reached; so that, while I have twice replaced the fragment thus



Fig. 1.

formed, with good results, I have in my last two operations simply removed as much of the bone as was required and thrown it away. I have also used a straight horizontal incision instead of a semi-circular flap. The results have been excellent, both from a cosmetic as well as a therapeutic point of view, so that I feel justified in recommending the following procedure for tumors in the outer half of the orbit: 1. Horizontal incision two and one-half to three inches long, beginning one-quarter inch from outer commissure, care being taken not to open into the con-

conjunctival sac.\* 2. Wide separation of lips of wound and showing back periosteum from outer side of bone. 3. Removal with strong bone forceps of outer margin of orbit and as much of outer wall as desired. 4. Opening the periosteum of the orbit and proceeding as usual.

As thus performed, the operation leaves a less disfiguring scar, and the sinking in at the site of the removed bone is so slight as to be practically unnoticeable, and is more than compensated for by the simplicity of the operation.



Fig. 2.

The accompanying photograph (Fig. 1) is that of a patient taken a year and a half after I removed from her right orbit a multi-ocular haematoma one and one-half inches in length by one-quarter inch in diameter, the bone being simply removed and not replaced, as described above. The tumor was below and to the outer side of the eye, and consisted of a mass of connective tissue filled with pockets, about an eighth of an inch in diameter, of coagulated blood; each pocket being separated from the others by well defined walls. The vision after the operation was 20 20, a little minus and has remained good.

Fig. 2 is of a patient from the apex of whose right orbit I removed a diffuse tumor of the optic nerve eight months ago. Her vision before the operation was reduced to shadows and

\*It is of course not always possible to avoid opening the conjunctival sac, where work has to be done on the external rectus muscle but, if possible, it is best to avoid connecting the sac with its constant population of more or less pathogenic germs with the orbital wound.

the nerve was atrophic. The bone was entirely removed as in the previous case. The appearance could, of course, be improved by an operation for the ptosis, but she does not care to return for this.

These photographs were obtained from a distance, the patients being instructed to have perfectly full-face untouched photographs taken, but in spite of this, the photographer in case 2 evidently could not resist the temptation to put the strongest light on the best side. I have tried to get another with the light falling perfectly square, but without success.

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Since reading the proof of this article I have come across a description by Rabiaud (Abst. in *Klinische Monatsblätter für Augenheilkunde* Nov., 1911, p. 694) of much the same operation as that described above, which he recommends not as a substitute for Krönlein's operation, but for an exenteration of the orbit. It is not clear from the abstract whether the author has ever performed the operation on a living subject.

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W. B. Saunders Company have just issued a new (16th) edition of their illustrated catalogue which described some forty new books and new editions published by them since the issuance of the former edition. The books listed in this catalogue cover every subject of interest to the medical man. The descriptions and illustrations are such as to enable the reader to select easily just the book he wishes on any branch. It is really an index to correct medical literature—an index by which the practitioner, the surgeon and the specialist can acquaint himself with what is new in the literature of his subject. This edition also contains an illustration and description of Saunders' new building, now being erected on Washington Square, Philadelphia's new publishing center. Any physician wishing a copy of this handsome catalogue can obtain one free by addressing W. B. Saunders Company, 925 Walnut street, Philadelphia.

## REPORTS OF SOCIETIES

### COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF DECEMBER 16, 1911.

DR. MELVILLE BLACK, PRESIDING.

#### Failure of Vision of Obscure Origin—Perhaps Glaucoma Simplex.

Dr. F. R. Spencer presented the following case: Man, aged 76, was first seen November 28th, and gave a history of inability to see distinctly, and of dull frontal headache after near work. He sees four artificial lights where there is only one, and a ring of light passing through all four, but of the same color as the lights, without rainbow tints. Vision began to fail a year ago. Has been wearing a +4.50 sph. before each eye for all near work. Distant vision is 15/20— with +2.00 sph., and near vision J. No. 2 with +5.50 sph. each eye. Repeated tests have failed to show increased tension. Pupils and anterior segment are normal. The lenses are sclerosed and hazy, with very fine punctate opacities, chiefly in the anterior capsule and two narrow spicules in the inferior cortex. The discs are paler than normal, with a slight bending of the vessels over their edges. Several of the retinal vessels are markedly tortuous. In near vision there is exophoria of 15 degrees and hyperphoria of 1 degree. Fields of vision, especially L, show very marked concentric contraction. Knee jerks normal. Urine negative. Blood pressure 150 mm. As regards diagnosis Dr. Spencer suggested glaucoma simplex or optic atrophy.

*DISCUSSION.* Dr. Jackson remarked that only the fields suggested glaucoma. If marked contraction were found on repeated tests, and especially with a tendency to further contract, this suspicion would be strengthened. It did not look like simple optic atrophy. Probably there was some other explanation of the fields than simple glaucoma.

Dr. Neepier said that the caliber of the vessels appeared considerably diminished. Probably the disturbance was primarily circulatory.

Dr. Black remarked that the absence of colored rings, and the presence merely of a blurred halo, were important. He had noticed some floating opacities in the right vitreous. The lenticular process he regards as a part of the general one. It ap-

pearing that the field had been taken with a 3 mm. object. Dr. Black suggested that if the fields were taken with a 1 cm. object, they would be found larger.

### **Scleral Trephining in Chronic Glaucoma.**

Dr. D. H. Coover presented a case of chronic glaucoma which had been under his observation for two years. A posterior sclerectomy done fifteen months previously had given relief from pain until two months back. Tension was at this time  $+3$  or  $+4$ , the eye being stone hard. The sclera was trephined by Dr. Jackson in the Denver County hospital. Beginning twenty-four hours after the operation, pain had become much less, and for some time she had had no pain whatever. It was now about five weeks since the last operation. T was minus. There was a little fresh blood in the anterior chamber. The patient had been subject to attacks of hemorrhagic glaucoma, and for this reason iridectomy was not attempted. Dr. Coover showed Dr. Jackson's trephine, consisting of a simple tube of 1 mm. caliber, sharpened at one end. In using, the tube was revolved between the thumb and forefinger.

Dr. Jackson.—The eye was very hyperemic at time of operation. Cocaine was injected under the conjunctiva as well as instilled. When the trephine went through the sclera there was a gush of partly fluid vitreous from the upper end of the tube. A hemorrhage into the anterior chamber which occurred a few days after operation, did not anywhere reach to the edge of the cornea, evidently because of a close approximation of the outer rim of the iris to the cornea. The trephine probably went through the edge of the iris as well as the sclera. Dr. Jackson referred to another case of glaucoma in which he had trephined five weeks previously. The eye had been quite soft for several weeks after the operation, but yesterday T had risen to about normal, although the eye was free from hyperemia. The filtrating scar looked like myxedematous tissue. He made no attempt to suture the conjunctival flap in either case. The bevel on the tube prevented it going very deeply.

**DISCUSSION.** Dr. Black suggested keeping a finger over the end of the trephine to avoid the gush on going through.

### **Wood (?) Alcohol Amblyopia.**

Dr. Strickler presented a man, 50 years of age, who had come for consultation four weeks previously, completely blind in the right eye. He was a barber. He had mixed a drink of



supposed grain alcohol in his shop at 5 p. m., and during that night awakened with a good deal of sickness at his stomach, which had continued next day. The second day afterwards he noticed a clouding of vision. Two days later he was completely blind in the right eye and the vision of the left was considerably disturbed. On coming for examination, after the taking of the alcohol, vision in the left was  $2/5$ . Scarcely any fundus change had been found in the right, perhaps a little blurring of the disc. A week later he began to see a little out of the right. Yesterday vision of the right was 20/200, the left normal with a slight correction. There was now quite definitely a slight paling of the disc. It was undoubtedly a case of retrobulbar neuritis of toxic origin. The alcohol had not the odor of wood alcohol, was bought for grain alcohol, but had been mixed in a perfume bottle before using. Patient denies having been at all intoxicated at the time. He is a moderate drinker and smoker. The treatment consisted at first of iodide and the high frequency current, and later strychnine.

*DISCUSSION.* Dr. Jackson said the case was suggestive of wood alcohol poisoning.

#### **Cyst of Iris Operation.**

Dr. Jackson again brought before the society a patient who had been previously presented on account of cyst of the left iris. The cyst had gradually increased in size until it measured 6.5 mm. in the vertical diameter and 7 mm. in the horizontal diameter. It had then become somewhat annoying, just covering the pupil in bright sunlight, obstructing vision, and causing slight burning, especially when out in the sun. The cyst being dependent from the outer edge of the iris near the corneal limbus, a 3 mm. incision was made through the limbus, the lance knife passing directly into the cyst without entering the anterior chamber. On withdrawal of the knife the cyst wall bulged through the incision. As much as possible of the wall was torn away with forceps, it being however necessary to leave a part of the cyst wall which was firmly adherent to the iris. There had been some pain from pulling on the iris, but reaction was slight, and dressing was omitted on the second day. Three weeks later the remains of the cyst was shriveled and appeared to be continuous with the iris tissue.

#### **Dislocation of Lens.**

(a) Dr. Jackson presented a case of dislocation of the lens, probably due to trauma. The patient, a man of 46 years, had

noticed failing vision in the right eye. He was first seen in January, 1911, and was then unable to remember receiving any injury. His memory had served no better a few days before the meeting, and again just before presentation to the society, but while sitting this evening in the dark room he had remembered an accident of twenty-three years earlier, in which he had been thrown out of the saddle, his leg and nose broken, and sutures taken in a large cut on his face. The temporal edge of the right iris was quite tremulous, and the anterior chamber here deeper than on the nasal side. The pupil was occupied by a grey opacity, through which a faint red reflex was obtained. Under cocaine, vision was  $4/60$ , and 1 mm. of peripheral cortex was seen to be almost clear. The temporal edge of the lens showed at the margin of the 8 mm. pupil. Slightly back from the iris in a crescent clear vitreous was visible.

(b) Dr. Jackson reported a case of double dislocation of the lens in a child now aged 5 years, but first seen at the age of 32 months. She had whooping cough very badly before a year old, and after that was noticed to have defective sight. At the age of 32 months she had been able to recognize a 1 in. test lens at six feet, and the 3.5 meter figure of Ewing's test card held close to her eye. The irises were quite tremulous, bulging below, and the anterior chamber deep above. The lenses were dislocated downward and in and quite movable, and their upper margins were within the pupils. There was some clouding of the peripheral cortex, but fair reflex. In June, 1910, pilocarpin was prescribed for regular use. In November, 1911, the pupils were eccentric, being displaced up and out; the width of the iris up and out was 2 mm., down 3 mm., and in 5 mm.; and the part of the pupil towards the narrow aspect of the iris was in each case clear. After dilating the pupils with homatropin, the vitreous was seen to be clear and the fundus normal in each eye. After skiascopy correcting lenses R.  $+11 +1$  cy. ax.  $125^\circ$ , L.  $+11.5 +1.5$  cy. ax.  $70^\circ$ , were prescribed. There was an evident gain in vision with these.

With regard to the case of dislocated lens reported at the last meeting of the society Dr. Jackson stated that the vision had improved and the iris become steadier under pilocarpin.

(c) Dr. Melville Black had recently had a patient 22 years of age, whose eye had been struck by a nail, the result being perforation of the cornea, dislocation of the lens, and later

traumatic cataract. The eye healed without much discomfort. For the last five years there had been no perception of light in this eye. Two months ago the patient began to have pain in the eye, and there had been repeated attacks of pain since, with glaucomatous tension. Seen on December 12th, the eye was much inflamed, and the dislocated lens lay in the anterior chamber. When the patient had lain back for a few minutes the lens passed out of sight, when the cornea was seen to be more or less vascular and disturbed in its posterior layers. The patient wanted the lens removed for cosmetic reasons, but considerable difficulty was experienced in consequence of the repeated disappearance of the lens when the patient lay on his back or indeed beyond the vertical position. Operation was finally performed with the eye under eserin, the patient leaning forward, and the lid held up with Smith's tenotomy hooks. A small corneal section was made below and the lens taken out with Desmarres' scoop. There had been no pain since operation, and the tension was now normal.

**DISCUSSION.** Dr. Black considered that such traumatically dislocated lenses should be removed because of the risk of their acting as foreign bodies in the eye.

Dr. Jackson would propose to remove the lens from his patient's eye if it became opaque, or changed its position and gave trouble.

#### **Monocular Trachoma.**

Dr. Melville Black reported a case of monocular trachoma. This was his third case in the last five years. Such cases are stubborn, giving very poor results with operative procedures. After unsuccessful employment of various common modes of treatment, he used Coover's sandpaper method, followed by daily applications of iodide of silver. In a few days' time the lids looked almost as bad as ever, although the swelling was more mushy. He then tried a 5 per cent solution of ichthyol. Since then there has been a steady improvement, with some evidence of beginning cicatrization.

**DISCUSSION.** Drs. Hess, Stillwill and Jackson referred to monocular cases which had come under their observation.

Dr. Libby had encountered a good number of cases of so-called papillary trachoma. In one of them operation had been advised by another physician two years ago, but although the treatment had been limited to the wearing of correcting lenses, the eye was now very comfortable.

**Dr. Coover.**—These are not cases of true trachoma. The granulations are located in the fornix, and can be seen on well everting the lid. There is very little secretion, but a good deal of lacrimation, and some itching. The granulations are found most at the inner and outer canthus. He treats them with sand-paper.

#### **Loss of Vision After Shot Wound of Orbit.**

Dr. A. L. Davis of Durango reported the case of a woman who was wounded by a 22 bullet fired from a shooting gallery. The ball went in a half inch or so below the external canthus, passed through the lower part of the orbit and the nose, and came out under the other eye. The case was seen within 24 hours after the injury, when the vitreous chamber was full of blood and tension was minus. After the use of iodides the blood cleared up, and a fairly good view of the fundus was had, but vision was gone.

Dr. Coover, who later saw the patient, stated that the eye-ball had apparently been penetrated below. The nerve was atrophic. The loss of vision might be due to hemorrhage into the orbit.

**DISCUSSION.** Dr. Black suggested that a fracture of the orbit had interfered with the integrity of the optic nerve.

Dr. Strickler referred to a case in which immediate loss of vision and subsequent complete optic atrophy had followed a blow on the eye by an iron implement.

#### **Change of Refraction in Diabetes.**

Dr. A. L. Davis reported the case of a diabetic man of 50 years whose vision had previously been normal, but who recently became unable to see clearly, even at a distance. He accepted for distance  $+2.00$  D. sph. with  $+0.50$  cy. The fundus was practically normal. A correction for distance and near was worn a month; after which time the patient stated that he no longer needed glasses for distance. Change amounting to 2 D. of hyperopia occurred in a few days. Ordinarily a sudden change is in the other direction.

Dr. Ringle had seen two such cases. In one a hyperopic astigmatism had changed to myopic astigmatism at the opposite axis; the second case also became more myopic. Both lost their power of accommodation, but later, after treatment for the general condition, were again able to read without their glasses.

Dr. Neeper suggested as explaining such cases a selective toxemia, possibly revealing a latent hyperopia.

**Refraction and Menstruation.**

Dr. A. L. Davis reported the case of a woman who complained of pain at each menstrual period, was given a refractive correction of cylinders against the rule, and afterwards reported that menstruation had become much more regular and comfortable.

**DISCUSSION.** Dr. Coover mentioned a case in which a six or eight weeks' pregnant woman had aborted upon use of a hydriatic for refraction.

**Salvarsan in Parenchymetous Keratitis.**

Dr. Melville Black reported the intravenous administration of salvarsan in an aggravated case of interstitial keratitis in a youth, a tuberculin test having proved negative. It was the second eye to be involved, the first one was getting better at the time, the boy had been under mercury at the time the disturbance in the first eye began, and heavy doses of sodium salicylate had also been used. The result of the salvarsan was apparently nil.

**DISCUSSION.** Dr. Neeper in such cases favors intramuscular injection of the drug because of the resulting slow absorption, and with this method has seen some cases that did nicely. He has also seen a case that appeared to do well on caecodylate of sodium, a negative Wassermann being also obtained.

Dr. Jackson referred to two cases which were being treated with salvarsan in the Denver College Clinic, and in which there seemed to be improvement as regards the pain and photophobia.

**Posterior Polar Cataract.**

Dr. Stillwell presented a case of bilateral posterior polar cataract. A man of 38 years, laborer by occupation. The vision with either eye was fingers at 2 feet. He had always had poor vision, and especially at night; but it had been getting steadily worse during the past ten years. One brother had had similar trouble. The retinal vessels were small and there were some old spots of choroiditis, opacities in the vitreous and some small pigment spots at the periphery of the retina.

**DISCUSSION.** Dr. Black thought that the lens changes were congenital.

Dr. Libby thought that the pigmentation at the retinal periphery had the bone corpuscle shape.

ELLET O. SISSON, *Secretary.*



REPORT OF THE MEETING OF THE PHILADELPHIA  
POLYCLINIC OPHTHALMIC SOCIETY.

DECEMBER 14, 1912.

THE PRESIDENT, DR. WENDELL REBER, IN THE CHAIR.

**Symposium on Muscles.**

Dr. Zentmayer said that ordinarily he employed the Maddox rod for far and near, supplementing it by a test which he had found accurate and readily understood by the patient; an ordinary red glass is placed before one eye, the same eye is then covered by a narrow card; after waiting for a few minutes the card is slowly drawn aside. As soon as the inner edge of the card has passed the visual line, if heterophoria be present, diplopia will be manifested. An illuminated disc  $\frac{7}{2}$  cm. placed 6 meters away is used for fixation. An error of  $\frac{1}{2}$  degrees can be detected by this test. For near the same test may be employed dispensing with the red glass and using a 1 mm., white square upon a black background as the object, or using the red glass and using a small electric lamp for fixation. The screen test he has found of value, but the parallax test has been found time consuming and only practicable with close observing patients. Of its real value he has no doubt. He therefore does not use it routinely, but as an essential test when operative interference is under consideration.

He believes that when a slight degree of esophoria, say from  $\frac{1}{2}$  to 2 degrees for distance and an exophoria of from 2 to 4 degrees for near is the state of equilibrium which is normal or at least not likely to produce symptoms. The estimation of adduction and abduction is best done with loose prisms and no value is attached to the amount of the former per se. A normal p. p. of convergence may be associated with a low prism degree of adduction.

In 150 consecutive private cases of refraction in which the patients had reported themselves free from the symptoms for which they sought relief at the end of from two weeks to one month's time after the cycloplegia had entirely passed off, he had found hyperphoria present in 34 per cent. In 96 per cent of these it was 1 degree or less. In only two instances was it above 2 degrees. In only one instance was it found necessary to regard the hyperphoria in the glass ordered. In 78 per cent the right eye was relatively higher i. e., there was right hyperphoria. In ordering glasses he ignores the hyperphoria where

it is less than 2 degrees and does not correct that amount unless the correction of the refraction error has failed to give relief. He believes the careful correction of refraction errors under atropin cycloplegia may be the explanation for the rarity of his being compelled to order vertical prisms. He would look for the uncovering of latent hyperphoria by the wearing of prisms where the hyperphoria has resulted from a secondary contracture following a congenital paresis of one of the vertical muscles. He is under the impression that except in actual esophoria divergence insufficiency is more common than convergence excess. Prisms base out have given relief in this condition. In convergence insufficiency prisms base in have given relief, but have usually been ordered to be worn during the stress of near work. Dr. Zentmayer also stated that he wears a 1 degree prism in each eye himself at times.

Dr. G. Oram Ring.—I have nothing to add to the fullness of Dr. Zentmayer's experience, and I find that I agree with him largely in the question of vertical defects and their corrections. I think with him that more and more I want to get away from the short mydriatic and use the long mydriatic. I do not use atropin, but I use hyoscin very largely and homatropin at times. As far as the vertical defect is concerned I feel that prisms should not be prescribed as much as they are. Certainly not in less than  $\frac{3}{4}$  and never less than 1 degree. May I ask Dr. Zentmayer how he deals with his cases of marked divergence deficiency, with adduction of 12 to 14 degrees and an abduction of 3 degrees. With exophoria I have, as you all have, many times had very good results from prism practice, but have gotten very little satisfaction by the use of prisms base in.

Dr. William Campbell Posey.—I would like to say that I have used the red light Dr. Zentmayer mentions with advantage, and I have also used the Maddox rod in much the same way. That is to say, when the patient's right eye has been refracted the screen is placed over the right eye and the left eye refracted. When this has been done the screen is removed from the right eye and the Maddox rod immediately slipped into its place and the patient's attention directed to a point of light directly to one side of the 5/5 line of letters on the card. In this way I am frequently enabled to unmask considerable latent hyperphoria. In a study of 2,300 of my private cases, 287 instances of hyperphoria were found. I think my practice in the use

of vertical prisms is different from that of Dr. Zentmayer and Dr. Ring. I think that in a great many cases because hyperphoria of one degree or more frequently gives rise to masked symptoms, unilateral headache is frequently complained of. Refraction of such cases helps out, but not nearly so much as the wearing of vertical prisms. Personally I cannot see any harm in them. The argument of those who are opposed to their use is that any latent trouble is made more manifest. I have records of many cases in which the hyperphoria has become more and more manifest but in my judgment it is not the use of the vertical prism that makes it more marked. I am very fond of using prism exercises for weak adduction. One point I would like to make is my belief that an esophoria of 2 to 3 degrees for infinity with an exophoria of 2 to 3 degrees at the reading distance constitutes normal balance. Whether this shall be called orthophoria is of course open to discussion.

Dr. Wendell Reber. As to the muscle balance at the near point, I find the Maddox rod and a tiny electric light to be held in the patient's hand a very practical method. Much valuable information is frequently overlooked by not estimating the muscle balance at the reading distance. Many a patient who shows 1 or 2 degrees of esophoria for infinity will reveal anywhere from 6 to 12 degrees of exophoria at the reading distance. When the muscle balance at the reading distance has been found, it is an extremely easy matter to remove the Maddox rod and estimate the patient's convergence near point by approximating the light to the patient's eyes and finding how close it may be carried without producing diplopia. Most patients will converge to at least  $3\frac{1}{2}$  inches. The essential point is that the patient should have at least 13 meter angles of convergence. They cannot continually use more than 4 or 5 meter angles of convergence without becoming uncomfortable. Convergence training is one of the most valuable things we have at our command today. I believe in it firmly. Like Dr. Posey I regard 1 degree of hyperphoria or more as significant. If, as has been claimed, the hyperphoria is simply a symptom that the refraction has not been done correctly, why do so many people after forty-five years of age exhibit hyperphoria? In the presence of presbyopia the most accurate refraction can be done, and yet in spite of the most painstaking refraction this is the period of life in which hyperphoria is most in evidence. My

own statistics as to hyperphoria indicate that right and left hyperphoria are of about the same occurrence. I have records of over 300 cases of hyperphoria in my private practice and I have made over 30 per cent of them more comfortable by the use of vertical prisms.

In the discussion of *Congenital Palsies*, Dr. William Campbell Posey pointed out that the shape of the orbit is in general terms governed by the shape of the skull. If there is a peculiarly shaped orbit it is likely that the muscles will be attached to the globe in some anomalous fashion. A certain number of congenital squints are due to the use of instruments at the time of delivery. It is essential to make a diagnosis between congenital and concomitant squint. The latter can often be cured by proper correcting glasses and operation need not often be resorted to. Congenital squint will almost always require one if not more operations. It is not easy to differentiate congenital and concomitant squint, particularly in a very young child. Generally there is either a falsely acting muscle somewhere or a weakened muscle. One can often get an idea as to which muscle is palsied by observing the position of the head and body of the patient. In 1700 patients at the Wills Eye Hospital and the Howard Hospital there were fifty-three congenital squints as against 309 concomitant squints. Sometimes repeated operations are necessary in such cases before anything like parallelism of the ocular axes is secured.

Dr. Reber called attention to the fact that concomitant strabismus is generally due to either a high grade refractive error or defective fusion, or what is most likely a combination of these two factors. He agreed with Dr. Posey that certain cases seemed to be due to instrumental delivery while a certain other portion are truly congenital. There is no denying, however, that a vicious factor in almost every case of strabismus (myopes excepted) is the abnormally active accommodation. If this can be quieted by whatsoever means, much can be accomplished in the non-operative treatment of strabismus.

Dr. Reber presented a "*Case of Anisotropia*" manifesting itself principally as an esotropia. The boy, who is now 16, has been under observation for twelve years; during which time he has been carefully refracted six different times. Ever since his sixth year it has been observed (with the cover test) that when the right eye is covered, the left eye drifts down and outwards

5 mm., and that when the left eye is covered the right eye similarly drifts down and outwards 5 to 6 mm. Both the right and left eye movements into position (when the cover is removed) are overdone. During each movement the upper meridian of the cornea is allowed to fall outward about 15 degrees temporally. This is immediately righted in the corrective effort at fixation. The patient preferred to fix with the right eye in which the vision was 5/5, that of the other eye being 5/30. When the right eye was carried well to the right the left eye was rotated directly up and inward. The same is true when the left eye was carried well to the left, the right eye rotating directly upward and inward. This would rather point to bilateral paresis if the superior rectus with spasmodic over-effort on the part of the associated inferior oblique muscle in the opposite eye. But the findings with the tropometer entirely negative this supposition. The upward rotation in the right eye being 41 as against the normal 32, and the left eye being 50 as against the normal 36. On the other hand the downward rotation in the right eye was defective, in that it showed 45 in the right eye as against the normal 52, and 40 in the left eye. Thus it is seen that both eyes are directed in a plane higher than the normal horizontal plane of the head. In spite of the most careful orthoptic treatment the apparent esotropia remains fixed at 30 degrees. It is perfectly evident therefore, that it is a purely symptomatic one, the true condition being the anomalous state of the vertical muscles operation upon the vertical muscles will probably correct the lateral deviation.

Dr. William Zentmayer. I have never seen operation on the superior recti absolutely correct upward rotation of the eyes. Because of this patient's deficient downward rotation, it might be well to do an advancement of the inferior recti or tenotomy of the inferior oblique or both.

Dr. Posey. I do not think tenotomy of the inferior oblique alone would cure this case. As a rule one cannot elicit double vision in congenital squint but the vision does not greatly deteriorate in one eye as it does in concomitant squint. The congenital squinters use both eyes. This young man now has 5/40 vision. Dr. Reber has said that when he first saw him he had only 2/60 vision but that now he had 5/40. I have only seen one case of true anisotropia before in my life. The little girl who presented this condition was one of twins. Each eye would deviate upward



from 7 to 10 mm., under cover. She wears a  $-1.00$  sphere at times. If very tired she will have a slight cast in her eye.

DR. D. FOREST HARRIDGE,

*Secretary.*

## SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING NOVEMBER 15, 1911.

DR. GEORGE E. DE SCHWEINTZ, PRESIDENT OF THE COLLEGE,

PRESIDING.

No proceedings will be published for the November meeting, inasmuch as this was a combined meeting of the Section on Ophthalmology and the Section on Otology and Laryngology, and was held during the Congress of the Surgeons of North America. At this meeting the following papers were presented by visiting physicians:

The Surgery of the Sinuses and its Relation to Orbital Complications, by Joseph H. Bryan, M. D., Washington, D. C.; The Relation between Otitic and Intracranial Diseases, by Gorham Bacon, M. D., New York; The Newer Operations for Glaucoma by John E. Weeks, M. D., New York.

These papers will appear in full with the other transactions of the Congress.

Meeting December 21, 1911. Dr. William M. Sweet, Chairman, presiding.

### **Migraine with Ring Scotoma.**

Dr. Zentmayer presented a paper entitled a case of Migraine with Ring Scotoma. A manufacturer, aged forty years, had been sent to him by Dr. Fussell with a diagnosis of migraine with high arterial tension. Between the years 1883 and 1885 he had had his first attacks of sick headache associated with disturbance of vision. In these there had been a temporary loss of vision, preceded by a scintillating wheel scotoma in each temporal field. In 1889 he had the first attack of bilateral hemianopsia, probably left lateral. In the last year, particularly in the last six months, he has had almost daily attacks of migraine. Dr. Fussell's examination showed accentuation of the second sound of the heart with heart dulness extending somewhat to the left. The systolic blood pressure was about 185.

There was a low compound hyperopic astigmatism with convergence insufficiency. On June 2, 1911, the visual field of

O. D. presented a negative absolute ring scotoma 10 degrees in width situated between the limits of the form and red fields and exactly concentric with the limits of the form field. The visual field of O. S. presented a similarly situated temporal hemianopsic ring scotoma. Five days later the right eye presented a temporal hemianopsic ring scotoma corresponding exactly with the temporal half of the original full ring scotoma; and the field of the left eye showed a breaking up of the original hemianopsic ring scotoma, leaving four dark islands varying in size from 15 degrees to 20 degrees.

On December 18 the visual fields were normal. Since wearing the correcting lenses, the sick headaches occur only occasionally, but at times he still has attacks of dizziness accompanied by the bitemporal scintillating scotoma.

The ring scotomata were probably due to vasomotor disturbances of the retinal circulation, whereas the homonymous lateral hemianopsia was due to occipital cortical vascular disturbance.

#### **Pigmentary Retinal Degeneration with Ring Scotoma.**

Dr. H. Maxwell Langdon reported the case-history of a patient with pigmentary retinal degeneration with a ring scotoma in the right eye, and a beginning similar scotoma in the left eye. After mentioning the various theories advanced to explain the formation of ring scotomata, special attention was given to the vascular and the nerve theory. Instances were cited where ring scotoma had been associated with accessory sinus disease, glaucoma, migraine, and in consequence of lightning stroke.

In the discussion of the papers of Drs. Zentmayer and Langdon, Dr. Crampton referred to the case of a young boy who had retinitis pigmentosa and whose visual fields when taken on a dull day showed isolated scotomata arranged in an irregular circle. When examined on a bright day the islands coalesced, forming a large arc of a circle.

#### **Keratitis Rosacea.**

Dr. Burton Chance reported the history of a case of Keratitis Rosacea in a man, aged forty-two years, whose eyes had been more or less affected for sixteen years. The disease of the skin had lasted since he was eighteen, and was subject to remissions and exacerbations, particularly in the spring and autumn seasons. The first ocular symptoms were the formation of styes and congested eyelids. Later the eyes became affected.

No special study was made or treatment given until he consulted Dr. Chance twelve years ago. Since then he has had several attacks, though he reported most irregularly for treatment. The skin lesions had become pronounced; the ocular lesions consisted of marked glandular involvement and of infiltration of the corneæ. The corneæ showed broad opacities in the subepithelial tissues with scattered areas nearer the peripheral parts. The vascularity was intense. There was at no time any tendency to ulceration nor perforation of the cornea, neither were the irides involved. At present there is quiescence of all the inflammatory symptoms, the lids are healthy, and the corneal peripheries are clear, the opacities occupying the fissural portion of the cornea. Dr. Chance does not look upon the disease as phlyctenular in type, but is inclined to regard it as being due to the trophic changes in the terminal nerves of the cornea induced by injury from heavy lids. Because the patient remained under treatment for the last three months, the disease of the skin is practically cured. The case did best when zinc lotions were used for the eyes and a solution of zinc sulphate with potassium sulphurate was used on the skin. Holocain solution was of great value for the cornea, and a rice diet best for the patient's well-being. The skin is regaining a healthy tone from repeated exposures to the X-rays.

Dr. Holloway stated that Dr. Chance's patient was interesting from several points of view; that the patient was a male, whereas the majority of the patients affected by this condition are females. Further, in the majority of the cases that have shown extensive subepithelial opacities the portion of the cornea that has been involved has been the lower half, although in one case that he could recall the upper portion of the cornea was the part affected. Fortunately, in the case that was observed by him, only one eye showed extensive corneal involvement, while the other eye showed a number of small efflorescences about the limbus, which bore a clinical resemblance to phlyctenular disease, although as elsewhere pointed out, the age of the patient and the associated acne would exclude such a diagnosis. In another case that had been seen by him through the courtesy of another member of the Section, the bulbar manifestations were unilateral, the lower portion of the cornea being involved, but less extensively than in the patient whose case history had been reported by him. Zinc seemed to be highly efficient in clearing up the lid conditions.

Dr. Crampton mentioned a case of rosacea keratitis which came to him shortly after Dr. Holloway had called attention to the condition by reporting a case which he had studied. The cause of the keratitis had long been unrecognized, although it had recurred several times coincident with mild attacks of acne rosacea. The lower portion of the left cornea was alone affected and showed a marked vascular tendency. Cure was rapid after the adoption of a course of local and systemic treatment suggested by a dermatologist, together with the usual remedies directed to the corneal condition.

Dr. Chance said that he had hoped Dr. Holloway would have offered some suggestion as to the causation of the disease of the cornea. He stated again his belief that in this case the involvement of the cornea represented neuropathic change and was not directly an element of the general acne, for the symptoms seemed to progress as long as the lids remained heavy and congested, and subsided whenever they became thin again. While not disputing Dr. Holloway's reference to the likeness to phlyctenular eruptions in the early stages, his intimate and rather prolonged study of his own case led him to believe that it is not phlyctenular. Dr. Chance said in view of the comparative rarity of the disease he wished to mention two additional instances of it. Several days ago, after an interval of five or six years, a lady returned for a change of glasses, when it was noticed that a rather faint roseola noted years ago had become a distinct acne with involvement of the glandular elements to a pronounced degree. The tarsal glands were decidedly congested and prominent even to the positive formation of a chalazion; and today, at the end of the clinic hour, a woman was assigned to him presenting well-marked acne rosacea with an area of corneal infiltration directly at the summit which did not look at all like a corneal phlyctenule. In this case also the tarsal glands were very prominent.

#### **Streptococcic Bacteremia with Panophthalmitis.**

Dr. H. F. Hansell cited the following history of a man, aged forty-six years, who died after three days' illness from streptococcal infection. He had consumed large quantities of alcohol during the last twenty years and was in a dilapidated state of health when admitted to the Philadelphia General Hospital. He complained of pain and swelling in both knees and ankles which he considered were due to rheumatism. The right

eye became acutely inflamed. The iris was muddy and discolored and simultaneously with or immediately after the iritis had commenced the anterior chamber became almost filled with a filmy, opaque membrane. The membrane of Descemet was covered with grayish deposit and the cornea propria infiltrated and opaque. The eye became entirely blind and almost immobile; all the signs of violent purulent panophthalmitis were present. The left eye remained unaffected. Pus obtained by puncture of the prepatellar bursa revealed myriads of streptococci.

Postmortem examination showed chronic interstitial nephritis, small and hard liver, chronic mitral valvulitis and aortitis, engorged vessels of the dura mater and pia mater, and streptococci in the culture made from clots removed from the anterior cerebral vessels.

Macroscopic examination of the eye: Anterior and vitreous chambers filled with purulent material, distended and tortuous vessels in the sheath of the optic nerve, especially in a focus about one-half inch from the globe. Microscopic examination: Diminution of the number of axis cylinders in the optic nerve, disintegration of the white substance of Schwan; choroidal vessels engorged and some of them blocked, and small round-celled infiltration between the blood-vessels. No streptococci could be found.

#### **Metastatic Gonorrheal Iritis Treated with Neisser Bacterin.**

Dr. Edward A. Shumway showed a patient from the wards of the Philadelphia General Hospital, who had recovered from a severe attack of bilateral gonorrheal iritis after treatment with Neisser bacterin. The patient, a male, aged twenty-five years, had had four recurrences in five years, and had an associated arthritis of the hip-joints. An injection of a dose of 50,000,000 organisms was followed by decided improvement, and a second one of 100,000,000, which was administered one week later, produced still more prompt response. All photophobia and pain disappeared, and after two subsequent injections of 200,000,000 and 300,000,000 respectively the ciliary flush cleared up entirely and the eyes remained quiet. No other general treatment had been given. Dr. Shumway said that since he had reported a similar case before the Section in February, 1910, the papers which had been written had tended to confirm the results collected at that time, viz., that the injections were of but little avail in gonorrhea of the urethral tract and the immediate ad-



nexa, and in gonorrheal conjunctivitis, but that they had proved very serviceable in metastatic involvement of the joints and iris. Recently, however, Palmer, of New York, had reported some successes in acute gonorrhea and in gonorrheal ophthalmia. Uhle and Mackinney, of Philadelphia, believed that the serum was more effective than the bacterin. A minor disadvantage of the use of the serum was the occasional occurrence of urticaria after the injections. This serum disease had been noted in two out of three cases of metastatic iritis reported in *The Ophthalmoscope* for December, 1911, by T. Harrison Butler.

Dr. Posey said that from an experience with the gonorrheal vaccines which he had recently had in five cases of gonorrheal iritis he was as yet unconvinced as to their value. In two of the cases an effusion had occurred into the anterior chamber about forty-eight hours after the patient had been inoculated with 50,000,000 of the gonococci. While he had observed similar effusions in other cases of iritis in which no vaccines had been used, its occurrence in two cases so soon after the injection seemed to indicate that it was dependent upon them. The effusions disappeared in about a week's time without complicating the future perfect convalescence, but he could not say that the injections had shortened or mitigated the seriousness of the attack. In two of the remaining three cases, both of which were initial attacks and occurred in young subjects, no effusions occurred after the vaccines had been administered and convalescence was speedy. As other remedies were applied, however, he could not attribute the favorable course entirely to the vaccines. The vaccines were employed in the fifth case in as high a dose as 1,000,000,000 of the gonococci to produce immunity from future attacks in a man who had suffered successive attacks of iritis each year over a period of ten years. Notwithstanding the presence of synechiae, not the slightest reaction followed any of the injections.

While Dr. Posey said that no blood culture had been made to establish the gonorrheal origin of the iritis in any of his cases, all had suffered from a urethritis at some previous time, and all had had arthritis.

Dr. Mary Buchanan (by invitation) referred to a virulent case of gonorrheal ophthalmia in a woman, aged fifty one years, innocently infected; in which after silver nitrate, argyrol, and irrigations of bichloride solution in the hands of a colleague had

failed to control the discharge, injections of Neisser bacterin had been used in conjunction with the usual treatment. When first seen on the twelfth day the left cornea was completely destroyed, as was the right, except for a small sector to the inner side.

Mulford's Neisser bacterin in the dose of 1,000,000,000 organisms was injected subcutaneously on the fourteenth day, with some diminution of pus and no systemic symptoms. Twenty-eight hours afterward 2,000,000,000 organisms were injected with a drop to 97.4° in temperature, and the development of headache, pain back of the eyes, and tingling of the fingers. In twenty-four hours the pus was diminished in quantity, and was thinner; by forty-eight hours it had become watery and had almost ceased. After five days, as there was still some discharge, another 1,000,000,000 were injected with decided effect, although gonococci were present until the twenty-ninth day of the disease.

Dr. Buchanan thought it was a question how soon the secretion would have stopped under energetic local treatment alone, but by carefully watching the case she was convinced that the bacterine did good each time it was injected, and without harming the patient by the enormous doses. Dr. Adelaide Peckham advised using it, and thought it nonsense to say it was of service in metastatic but not in acute conditions because the germ is the same. Dr. L. H. Bernd claims to have had success in treating acute genito-urinary conditions with Neisser bacterin in enormous doses, but has never reported the details of his cases.

In conclusion, Dr. Shumway said that no reaction, either local or general, had been observed in his patient.

#### **Antral Disease in a Four-Months-Old Child.**

Dr. Krauss reported the history of a case of antral disease with marked orbital symptoms occurring in a four-months-old child. The child's birth was normal. When the child was one month old it had a severe cold, but made an apparent recovery. One week before admission there was a recurrence of symptoms, with swelling of the eyelids and face.

On admission the temperature was 100° F. The left side of the face was greatly swollen, with much edema of the lids. The left eye was greatly proptosed, with ocular movements greatly restricted. Down and out in the orbit there was an appearance of tumor suggesting inflammatory origin. The nasal mucous membrane was much swollen, showing much pus, especially in the left nostril. Examination of the mouth showed mobility

of the palatal plate of the superior maxillary bone. In the alveolar process of the superior maxilla on the left side, at about the site of the first bicuspid teeth, was a minute granulating spot which upon probing exuded pus rather freely. With but slight effort a grooved director was passed along the sinus to the sinus maxillaris, and upon enlarging the opening with a curette, the bent probe could be passed into the outer part of the orbit into the tumor then presenting. Much free pus was evacuated. After making a counter-opening into the nose, the cavity was washed freely with boric acid and packed with iodoform gauze.

In curretting the sinus, two large well-developed teeth were brought forth. Each tooth measured approximately one quarter of an inch in length and was quite hard.

Treatment consisted of daily washing of the sinus followed by packing with iodoform gauze. Later, on account of continued loss of weight and refusal of food, a packing wet with a weak bichloride solution was substituted. The swelling rapidly disappeared. There was some exfoliation of small fragments of bone. No incision into the orbit was made until several weeks later, when a small sluggish abscess, which had remained, was opened, the drain being removed in two days.

Onodi has shown the presence of practically all of the sinuses in the first year and has demonstrated that the antrum in the first year of life varies from 5 mm. to 19 mm. long, 3 mm. to 9 mm. high, and 3 mm. to 8 mm. broad.

Dr. Posey said that he had observed three cases in the Children's Hospital, which closely resembled that reported by Dr. Krauss. All had had unilateral exophthalmos, from pus in the orbit, and in all there was evidence of a carious condition of the superior maxillary bone. In the first two there were sinuses in the floor of the orbit, at the angle of the jaw and in the buccal cavity, while in the last, which was under his care at the present time, he had recently incised a collection of pus in the hard palate and had removed several loosened teeth from a carious jaw. He had considered these cases as instances of an osteomalacial disease of the superior maxillary, dependent upon some general dyscrasia, and had not thought of their being dependent upon antral disease. Indeed, until he had heard Dr. Krauss' explanation, he had never considered it possible that the antrum could be the seat of inflammation in such a young subject.

Dr. Krauss, in closing, asked Dr. Posey for the ages of the

patients spoken of by him. The special points of interest in Dr. Krauss' case was the extreme youth of the patient, slightly over three and one-half months old, and the possibility of antral disease at this time of life. He emphasized the fact that much has been learned in the recent past regarding the presence of nasal sinuses in very young children, to disprove the thought formerly prevalent that they are a later development of child life.

Dr. Posey stated that he thought his cases ranged from one to three years of age.

#### **Atrophy of the Iris with Polycoria.**

Dr. Charles R. Heed exhibited a patient with polycoria resulting from atrophy of the iris. The patient exhibited evidences of a chronic iridocyclitis, with the following sequelae: Ocluded and secluded pupil; secondary, glaucoma; atrophy of the iris with polycoria, and evidences of beginning ciliary staphyloma. The primary condition was probably luetic in origin.

Dr. G. E. de Schweinitz exhibited a water-color sketch illustrating similar iris conditions.

T. B. HOLLOWAY, M. D.,

*Clerk.*

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## **OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.**

**THURSDAY, NOVEMBER 9, 1911.**

MR. J. B. LAWFORD, PRESIDENT, IN THE CHAIR.

Mr. Foster Moore showed a case of Bilateral Angioma of Retina. The president asked whether Mr. Moore thought the title was quite accurate. He asked because he would have thought that what could be seen were retinal vessels which were usually dilated. Mr. Foster Moore replied that there was a very large artery going to it, and a large vein coming from it. Mr. Hugh Thompson showed a second Orbital Endothelioma occurring 11 years after removal of the first. He said he regarded it rather as a fresh growth than as a recurrence of the former one. Mr. L. J. C. Mitchell showed three cases of rodent ulcer which had been successfully treated by means of carbon dioxide snow. The president regarded them as very good examples of the successful use of the method. Mr. N. Bishop Harman showed a case with dislocation of the lens in the posterior chamber due to an accident 18 months before. The vision had remained excellent. Mr. Wray showed a new model of a Placido's disc, and retinoscopic lenses.

Professor Straub read a communication on the pathology of dust-like opacities in the vitreous body and of Descemet-dots, and it was supplemented by an epidiascope demonstration. He said that among the diseases of the eye there should be recognized an inflammation of the vitreous body, which he proposed to name "hyalitis". He injected into the vitreous body of the rabbit some pathogenic microbes. Those microbes made the culture there and only there, and attracted to the vitreous body serum and leucocytes. The serum and leucocytes were produced by the vessels of the ciliary body, but that was not a reason to talk of cyclitis in cases of inflammation of the vitreous body. He likewise injected into the ciliary body pathogenic microbes, and to those went serum and leucocytes, and there was produced a real cyclitis, quite different from the hyalitis which he had in the first experiment. In the laboratory hyalitis could be distinguished from cyclitis, and the same distinction should be made in practical work. But that had not yet been done. The two diseases were mixed up in the text books. The books said the ciliary body poured out its exudate into the vitreous body, but that was a mistake, as leucocytes did not allow themselves to be poured out. Mechnikoff said that leucocytes only went where they were attracted by chemotactic substances. When there were microbes in the vitreous body, those substances went towards the vitreous body; when microbes were in the ciliary body the leucocytes went to the ciliary body. He had, in order to test the matter, tried to produce inflammation of the ciliary body, by infecting the ciliary body with tubercle bacilli, causing in that way granuloma. He then made sections to see whether the vitreous was clear. He thought it was clear, with the exception of a few leucocytes here and there. But when making sections through the eye he found that the optic nerve was somewhat swollen, and that in its cup there were many leucocytes, and those were projected onto the immediately adjacent retina. So he concluded that tubercular granuloma in the ciliary body had the power to cause a very slight inflammation of the optic nerve on the other side of the eye. The lymph stream in the eye went from the ciliary body to the optic nerve, and took with it some toxins which were produced by the granuloma. Those experiments were made 20 years ago. He did not feel satisfied with his method of infecting the ciliary body, therefore 8 years ago he recommenced.



with a colleague, a new series of experiments, in which a thread charged with tubercle bacilli was passed through the ciliary body, through the sclerotic, and through the superficial layer of the ciliary body, and brought out into the sclerotic again. The thread was cut at the points of entrance and exit, so that there remained in the ciliary body a piece of thread 3 mm. long, and after 10 to 14 days a granuloma commenced. Some weeks later the eye was extirpated and sections made, and he found the same things as in his experiments 20 years ago. He showed colour photographs exhibiting the points he had mentioned. The dots were caused by groups or heaps of leucocytes. Among 14 cases of dustlike opacities only one was syphilitic, 9 were tubercular, and the remainder he did not know the nature of. It was quite clear that Descemet's dots were groups of leucocytes. The vitreous body, he felt sure, obtained no leucocytes from the cornea; in inflammation of the vitreous body the leucocytes came from the vitreous body.

The President thanked the Professor for his able exposition, based upon prolonged and numerous experiments. Mr. Treacher Collins asked how the leucocytes which died got to the back of the cornea in the first place. Mr. Herbert Parsons said he understood Professor Straub's contention to be that the leucocytes were carried forward in the lymph stream, and his explanation of the formation of the dots was a very ingenious one. But the speaker criticized the use of the terms "hyalitis" and "descemetitis," as he regarded their use as backward steps in pathology. The tissue under discussion was non-vascular and apparently passive, whereas inflammation was pre-eminently an active process. He had hoped the Professor would have supported the view which he, Mr. Parsons, had hypothesized, that where there were dustopacities in the vitreous associated perhaps with choroidal change, there was really a low grade of cyclitis going on to account for the presence of those opacities, and that they were not due to any inflammation present in the vitreous *per se*. Supporting that view was the fact that in cases of choroidal inflammation there was no transference of leucocytes or organisms directly from the choroid into the vitreous until the membrane was burst through. Mr. W. H. Jessop said the Professor did not appear to have made quite clear what he understood to be the difference between hyalitis and cyclitis. He had been much interested in the demonstra-

tion of leucocytes in the cup of the optic nerve, and the slight degree of papillitis. That was particularly interesting because one often felt there must be some papillitis because of the degree of swelling.

Professor Straub replied, affirming his belief in his ultimate power to convince ophthalmic surgeons of the truth of his thesis when he came to publish the full results of his work. He relied for the acceptance of his views upon a combination of the histological and clinical material which he had collected.

Mr. A. W. Ormond read a paper on Ocular conditions found in Mongolian Idiots. He had examined a number of these cases at Earlswood and Darenth Asylums, at the Evelina Hospital, and elsewhere, in all 43 cases. He described the facial and physical traits. They had a certain liability to particular diseases. Over 50% had a defect in their lenses, and almost all had some ocular defect. Sometimes Mongolians could be recognized as early as the second year. When seen later they were short of stature, due mainly to the shortness of the limbs. The head was round and the occipital protuberance of the skull ill-developed. The hands were small and the thumbs squat, the little finger being incurved. The foot was flat, and the subjects often sat tailor-fashion. They had a difficulty in pronouncing certain consonants. They were imitative, fond of music and affectionate. Most of them died from tuberculosis, and they did not often attain adult life. There was almost constantly some ocular trouble present blepharitis, ectropion, squint, nystagmus, or lens opacity. Blepharitis and conjunctivitis might be primarily due to dirty habits, and might be kept up by uncorrected errors of refraction. A more certain cause of the inflammatory condition of the lids was a dry, glazed condition of the skin of the lower lids, which, by its contraction, caused a slight degree of ectropion. In more than 50% of his cases, some forms of lens opacity was present, and with such a high proportion, it might be regarded as an aid to diagnosis. The cataracts were of the incomplete form, and most of them of the "dot" variety, in the position common for lamellar cataract. These dots when slight were often translucent, and so could not be seen by transmitted light. The opacities did not reach to the periphery of the lens in any direction, and consisted of numerous small discrete dots. The posterior pole of the cataract was often marked by a star-shaped

opacity. Though the teeth of these people were defective, they did not show the honey-combed condition so frequent in cases of lamellar cataract. Mr. Ormond could not record accurately the visual acuity, as the children were not sufficiently controllable to be trusted with glasses. The youngest of the patients showing cataract was aged  $6\frac{1}{2}$  years, and the oldest 43. Mongolian imbeciles were, in many cases, the children of old parents, or the last child in a large family. Of his 42 cases, 32 were males, and 10 females. The average was  $13\frac{3}{4}$  years. 23 had the interpalpebral fissure directed upwards and outwards, 5 had myastagnus, 9 had squint, 18 had either blepharitis or ectropion, or both, 11 had epicanthus, and 25 had some lens opacity.

C. DEVEREUX MARSHALL,

*Secretary.*

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### WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF TUESDAY, JANUARY 2, 1912.

DR. WILLIAM ZENTMAYER, CHAIRMAN.

Dr. Posey exhibited a case of congenital ptosis in a boy of 9, upon whom he had recently performed a Panas operation. The drooping of the right lid had been quite pronounced before the operation, that of the left lid but moderately so. The Panas operation was chosen because it was thought that procedure was the best adapted to gain the moderate amount of correction desired; Posey believing the development of the bones of the face would tend in a large measure to overcome the defect. He stated that the procedure of Panas has the advantage of affording the performance of more extensive operation if further raising of the lid is necessitated.

Dr. Ziegler thought Dr. Posey's result most admirable as the operation had the effect of raising the outer canthus. In certain similar cases he had used the Hunt-Tansley method with marked satisfaction. It is interesting to know that as far back as 1866, Dr. William McClure of this hospital devised procedures the original drawings of which have been preserved, exactly like those more recently advanced by Hunt-Tansley.

Dr. Schwenk said the result obtained justified Dr. Posey's selection of it in this particular instance, yet while he himself had performed Panas' operation, he does not confine himself to it exclusively, but adopts other procedures to suit the conditions of the case in hand.

Dr. Radcliffe, while complimenting Dr. Posey on the result in his case, agreed with Drs. Ziegler and Schwenk that there is no one operation that is applicable to every case of ptosis. He said that he had recently done the Hunt-Tansley operation—or as it should be called the McClure operation, as the later antedated the former in the description and use of the operation—with excellent results.

Dr. Radcliffe exhibited a patient on whom he had performed iridotomy to relieve an incarcerated iris, the result of an old injury in which the cornea, iris and lens had been perforated by a piece of wood. The lens had become absorbed, leaving a thickened capsule, to which the iris was attached at the lower pupillary margin, and adherent to the corneal cicatrix, situated at the nasal margin of the equator, extending from the sclera to the center of the pupil.

A v-shaped capsulotomy was first done forming a somewhat pear-shaped pupil. An iridotomy was then done on each side of the cicatrix with a Ziegler knife needle. The needle was entered at the sclero-corneal junction, the cuts were made from the pupillary margin to the periphery, completely freeing the iris from the scar tissue. The operation was painless though done under cocaine anesthesia, and was free from reaction.

Dr. Posey congratulated Dr. Radcliffe upon the success of his operation and spoke of the division of anterior synechiae by Lang's method. He, however, deprecated the use of that procedure in all cases of extensive synechiae, on account of the hemorrhage which the division of the adhesions entails and of the complications likely to follow.

Dr. Ziegler was of the opinion, from his own experience, at least, that the knife needle operation was not only simpler, but the least likely to cause damage to the ciliary body.

Dr. Radcliffe presented a bottle for the preserving of solutions of eserine. It had been prepared according to the suggestion of Prof. La Wall of the College of Pharmacy who believes that the discoloration, which takes place so soon in solutions of this valuable drug, is caused by the alkaline reaction of the silica in the glass. To prevent this he coated the interior of the bottle with pure paraffine. A solution remained colorless for eight weeks, but when the coating was accidentally broken, the usual pink color appeared in it in a few days. Radcliffe regards the suggestion as a practical one and one that is worthy of further experimentation.

Dr. Posey said the coloration of old solutions of eserine is due to the formation of rubeserin. He does not know how much of their strength miotics lose by discoloration. He is convinced, however, that the follicular conjunctivitis sometimes observed after the prolonged use of miotics is not due to any inherent property of the drug, but rather to the solution becoming unsterile so that the conjunctivitis is really of microbic origin. He showed an arrangement of bottles in a castor like rack, which he had devised some years ago, which he had found of great service in the treatment of operation cases; each patient being provided with a separate apparatus. He exhibited also a bottle and dropper devised by Dr. Gifford, of Omaha, the dropper serving as a stopper for the bottle as well as providing a glass hood to protect the mouth of the bottle from the dust.

Dr. Chance spoke of his use of Dr. Posey's castor tray in his office. He has the tray supported by a ring affixed to the wall over the gas flame. By this means the daily solution he uses can be kept warm as well as maintained under convenient observation. He said he had for years believed that the chemical reaction took place between the glass and the eserine solutions contained in them, yet he holds to the idea that all glass does not react alike to the same degree. When serving as Junior Resident it was his duty to prepare the house solutions, and he early noticed that when eserine was placed in a Stroschein flask, the solution remained clear longer than when placed in other coarser bottles.

Dr. Ziegler said he has all along regarded the conjunctival irritation noticed after prolonged use of eserine as having been caused by extraneous substances. He believes the salicyate of eserine is acted upon less strongly than the sulphate. He, too, believed that different kinds of glass affects solutions differently. He intends to import a variety of glass ware with which he hopes extensive experimentation may be carried on.

The chairman said he did not think the matter of the discoloration of eserine solutions was of much moment, as it did not seem to affect seriously the therapeutic effects of the drug. What is most important is that we employ sterile solutions, especially where they must be used over a long period of time. It is best, therefore, to have our solutions changed frequently. As to the cause of discoloration being attributed to the silicate in the glass of the bottle it was interesting to recall that this



was likewise responsible for the difficulty experienced in making solutions of holocaine and that it could be in a measure overcome by rinsing the bottle with weak sulphuric acid.

Dr. Chance said that the subject of the preparation of collyria and other solutions with their preservation is not without interest and can still be discussed to our profit. Dr. Zentmayer's allusion to the mode of preparation of solutions of holocain offers, probably, the explanation of the cause of the intense pain sometimes complained of when even quite weak solutions of holocain have been used by patients in their home treatment.

Dr. Harbridge in a paper reciting three cases of ocular manifestations in hysterical persons, briefly reviewed the literature on the subject and quoted from Mitchell, de Schweinitz, Hocken, Risley and others, and said that there are many views regarding its pathology, but no definite post mortem changes in association with hysteria have been reported. He arranged the ocular symptoms in groups connected with, 1, the visual function; 2, the muscular apparatus; 3, sensation; 4, secretion; 5, subjective sensations. In the cases he reported the first had persistent defective fields of color and form; the second had periods of simulated blindness; and in the third, uraemic amaurosis was simulated, in which the "deception" was carried to the extent of placing egg albumin in the urine.

Dr. Posey said that he had recently studied the fields of vision in a case of astasia abasia in which there was marked contraction for form and color, but without reversal; tubular projection of the fields could not be demonstrated. He had also recently observed two cases occurring in young Irish girls of hysterical contraction of convergence, one after a trolley injury. He said that when he was a student of Parinaud's in Paris he had observed a large number of hysterical subjects with ocular symptoms in Charcot's clinic in the Salpêtrière, but he attributed the great number of such cases present there to the fact that neurotic subjects were prone to imitate the symptoms of those about them. He thought it not unlikely that, even though the American temperament is not so liable to be seized with neuroses as the Latin, it would be possible to evoke a considerable group of hysterical symptoms in any clinic should the clinician dwell upon the phenomena observed in neurotic patients before an ordinary hospital audience.

Dr. Schwenk recalled several cases of hysterical blindness

and mentioned that reported by Dr. Harlan many years ago in which the patient supposed that a foreign body had destroyed the sight, yet was entirely relieved when an ingenious "wooden-magnet" was applied to the eye.

Dr. Radcliffe spoke of a case of hysterical nystagmus he had seen some years ago, which recovered under tonic treatment and outdoor exercise, and never has had any recurrence.

BURTON CHANCE, *Secretary*

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### ST. LOUIS OPHTHALMOLOGICAL SOCIETY.

#### The Antiseptic and Germicidal Properties of the Silver Salts

MEETING DECEMBER 6TH, 1911.

Dr. Marsh Pitzman.—The paper was a scientific demonstration with charts of the reasons for the following conclusions: That silver nitrate combines with albumins in a definite ratio of quantities; in simple words, enters into a true chemical reaction.

We therefore have two possible silver nitrate-albumin mixtures. First, those in which silver nitrate is present in less amount than is required to satisfy the albumin affinities. Second, those in which silver nitrate is present in excess of the amount required to satisfy the albumin affinity. The first class (without excess free silver nitrate) are very poor germicides, killing staphylococci only at end of twelve hours, but are antiseptics. The second class (with excess free silver nitrate) are powerful germicides.

In the list of the silver albuminates at present in use, we have both classes represented. Argyrol and collargol are silver albuminates without excess free silver nitrate, hence are antiseptics but poor germicides. Albargin, Tathargan, Novargan, etc., and most of the newer preparations, are silver albuminates plus excess free silver nitrate, hence are good germicides. As the second group contains excess free silver nitrate it does not appear reasonable that its members can have any real advantage over the simple dilution of the nitrate of silver.

**DISCUSSION.** Dr. Alt: I am very glad to have heard this interesting paper because I have for a good many years been in the habit of using protargol when I had to deal with purulent conjunctivitis and using argyrol in catarrhal cases, because I found that protargol acted quicker than argyrol in the former ones. This is, as Dr. Pitzman has explained, probably due to the excess of nitrate of silver in protargol.

Dr. Charles. I should like to ask Dr. Pitzman one question, that is why the silver albuminate doesn't continue to retard the growth if it retards it at once?

Dr. Post. I would like to ask Dr. Pitzman then if he regards argyrol as inaccurate as a germicide due to inaccuracy as to the amount of excess of free nitrate of silver in the preparation?

Dr. F. L. Henderson.—The old question of the relative merits of argyrol and protargol comes up again. I know Dr. Alt's views on the subject, he has always advocated the use of protargol in purulent conditions in preference to argyrol. I think there are a number of us who find argyrol equally as beneficial in purulent conditions as protargol. I want to say that since the introduction of argyrol I have not used protargol at all. In ophthalmia neonatorum, for instance, I substituted argyrol years ago and have used it exclusively. Protargol is often very irritating and painful, and argyrol quite otherwise. The action of argyrol in purulent conditions, I think, we were to understand some little time ago in a paper by Schneider, was necessarily germicidal, but was probably due to the production of leukins. When the position is taken that argyrol is of no value in purulent conditions, I think we cannot quite accept it, because I have found argyrol clinically equally as beneficial as protargol.

Dr. Alex Wolf. I am very grateful to the Ophthalmic Section for having extended to me the invitation to attend tonight's meeting. The field to which the ophthalmologist devotes his particular attention is somewhat remote from the one which is the object of study and observation of the venerologist, but both have frequently one enemy in common, the gonococcus, and knowing the difficulties they often encounter in combatting it, they better than anybody else are apt to pass their expert judgment as to the relative gonocidal value of different silver salts.

I agree perfectly with the results of Dr. Pitzman's laboratory researches as far as collargol and argyrol are concerned. Neither has proved in my experience to possess the least bactericide effect upon the gonococcus living on the human urethral mucosa. I used the collargol injections to the maximum extent of its solubility (5%) 3-4 times a day for many days, without any marked decrease in the number of gonococci in the urethral discharge. Argyrol, even in the strength of 50%, had no gonocidal

effect and I have discarded it in my gonorrhoeal practice entirely. Both preparations have no irritating effect upon the acutely inflamed urethra, but after the lucid explanation of Dr. Pitzman, we can attribute the lack of irritating effect and failure to act as a bactericide upon the gonococcus to the same cause, lack of free silver nitrate. While speaking of collargol, I wish to mention its most wonderful effect, when in the strength of 2% injections, in cases of Bact. Colicystitis where it acts very effectively and transforms the foul ammoniacal urine into one of neutral or normal reaction. In one regard more, the result of the laboratory researches carried out by Dr. Pitzman, tallies with my experience, the outspoken gonocidal effect of nitrate of silver even in very fine dilution. As long as fifteen years ago my teacher and master, Ludwig Spitzer, of Lang's Syphilis clinic in Vienna, instructed the staff physicians to add 0.1 com. Ag NO<sub>3</sub> to each liter of 1:3000 permanganate of potassium solution, in applying Janet's method of the treatment of urethral gonorrhoea, and to compare the results obtained with the original Janet's application (without nitrate of silver). The investigation proved decidedly in favor of the mixed application, through which the course of the disease was invariably shortened.

In regard to organic silver salts as gonocides my experience of about fifteen years of practical work, having passed through the whole gamut of the organic salt preparations in the succession in which the chemical industry placed them on the market, is similar to one Goethe's Faust expresses in his famous monologue: "I am just as wise as I was before. . . ." From Protargol through Ichthargan, Argentamin, Albargin, Syrgol down to the latest addition, the Silver iodide emulsion of Parke-Davis, I fought myself through with zeal, energy and much optimism, to find only that just in a case in which I was particularly interested, in which a failure was going to hurt considerably, my favorite preparation proved a dead-sure disappointment. I recollect an instance in my recent experience, where Albargin, which of all silver preparations gave me most satisfaction in the treatment of gonorrhoea, had not produced any effect upon gonococci despite a prolonged (3 weeks') treatment, while Parke-Davis preparation of silver iodide, which I had applied previously in several cases, without any encouraging effect, brought about the total disappearance of gonococci within six days (12 treatments). I shall pursue the matter in order to ascertain whether or not the application of different silver salts in the

course of treatment will be advisable, lest the effect of the first applied preparation wear out.

Closing, I wish to emphasize the old established fact that the results of laboratory research work cannot apply in full measure to practice. The human body in itself is the most complicated laboratory. Most powerful and only in a small degree known biological factors influence the effect of every drug introduced into the human body for curative purposes. What proves a success *in vitro* may become a failure *in vivo* and all theory may be thrown overboard by practice. As heretofore, each of us will have some special favorite which has served him faithfully, and wisely profit by his own and other authors' disappointments.

Dr. W. H. Luedde, Parke-Davis & Co., recently sent a sample of their silver iodide suspension to the Eye Clinic O'Fallon Dispensary. So far I have not used it, but am curious to know if the silver iodide is as painless as it is claimed to be. Perhaps the last speaker could explain that point. I would like to use it in some of the cases where silver nitrate solution is not well borne.

Dr. Pitzman, in closing. I answer to Dr. Henderson's question, that is a matter of concentration. When you get the silver albuminate strong enough it will gradually kill the bacteria. As to the work of Schneider's on "Leukins", I have studied the original and Dr. Alt's translation. It certainly represents an enormous amount of work and very honest work. I do not agree with his conclusions. He attempts to establish a new type of antibody under the name of "Leukine" an antibody resisting heating to 56° C. for over an hour. Such an antibody, complement his really is, is unknown in established university work. I feel that Dr. Schneider does not exclude silver albuminate as the real antiseptic in his work.

In answer to Dr. Charles: The figures taken are purely arbitrary and diagrammatic. At times in spite of the fact that minus is recorded, there may be the slightest trace of clouding, of growth, which practically cannot be noticed. In the egg-albumin series the growth cannot be determined by inspection and so those figures represent the result of culture.

In answer to Dr. Post: I consider argyrol a very poor germicide. To kill the staphylococcus in full strength it takes about twelve hours. When I say argyrol is a very weak germicide I do no disapprove of it in practice, except when used in a condition



where a real germicide is required. In fact, I believe argyrol and collargol are the newer silver preparations which should be used, which have a real cause for existence. In place of the other silver preparations, I would advocate the use of very dilute solutions of straight silver nitrate, which is practically what they are. The treatment of ophthalmia neonatorum was based by Credè on the use of an active germicide, and it is pretty generally accepted that a germicide must be used in order to make sure of killing off the gonococcus. Just how strong or weak, that of course is a question for the specialist to determine. It depends also on the individual, how thoroughly it is applied. In this procedure I do object to the use of argyrol and collargol. Personally, I feel that you get results in the treatment of catarrhal mucous membranes not because you kill off the bacteria, but because of various other reasons.

#### **Presentation of Specimen.**

Dr. Alt.—I would like to demonstrate two X-ray pictures of a case which came under my observation, as follows: On the 1st of November, a boy nine years of age, receiving an injury to his left eye came to see me. It was utterly impossible to get anything out of the boy as to how he received the injury. I saw him on the fifth day, four days after the injury and I found an abrasion on the upper lid of a very congested eye-ball with chemosis; there was a wound three to four inches long in the upper nasal quadrant, which penetrated exactly through the corneoscleral junction. The iris and some vitreous were wedged into the wound. Through the opening pus could be seen in front of the ciliary body. There was already a cataract, V.=0. The pupil was still well dilated at that time. There were all the symptoms of a purulent cyclitis, perhaps, a panophthalmitis, and I tried very hard to find out whether there was a possibility of a foreign body in the eye. Yet, in this, I was unsuccessful, since the boy would not tell how he was injured. When, after a few days hypopyon developed, I sent him on the 10th of November to Dr. Carman to have an X-ray picture made. This X-ray picture showed five or six small foreign bodies in the vitreous body. They were arranged almost in a line. When I received this plate, I was of course making up my mind that I should probably have to remove this eye-ball, but since the eye became more quiet, I decided to wait, and it was not until a week afterward that it suddenly struck me when thinking about these foreign bodies that

about two hours before the X-ray picture was made I had dusted some xeroform into the boy's eye, which as you know is a bismuth preparation. I had another plate made by Dr. Garstang and this plate showed no foreign bodies. I thought this was an experience that might happen to any of you gentlemen and be of help to you in case you have a similar difficulty. The eye is now getting very much better, the wound is closed, and there is good light perception. The boy never had any pain. I am now in hopes of perhaps being able to give him some sight later on.

**Hypopyon Keratitis Treated with Powdered Methylene-blue.**

Dr. John Green, Jr.—Mrs. S. O., an elderly Jewish woman, formerly under my care at the Social Service Hospital Dispensary for chronic conjunctivitis associated with ectropion, presented herself at my office November 27th.

Ocular History: Right eye very sore for two weeks; unable to sleep for several nights past; treated at two dispensaries without improvement.

Examination: The right eye presented an oval undermined ulcer of the cornea, near the upper limbus with an hypopyon extending about  $\frac{1}{4}$  up into the anterior chamber. The hypopyon was thick and dense and my impression was that the best thing to do was to get her to the City Hospital and do a Samisch section. As Dr. Saxl had charge of the Eye Dispensary in connection with the City Hospital, I appealed to him to make arrangements for her entrance. He came to my office to look over the case and suggested that we do not send her to the hospital but adopt a method of treatment which had recently come to his notice through Dr. Wolfner. This method consisted in the filling up of the ulcer with powdered methylene-blue. I had previously had some experience with a weak solution of methylene-blue (1/500) as an irrigating solution for lachrymal sacs and was favorably impressed with it. Accordingly, I cocainized the eye and filled up the ulcer with the powdered methylene-blue after using atropin, two or three times. The eye was then covered with a pad, held in place by Dr. Saxl's eye shield, and the patient allowed to go home. The following day the patient stated that, aside from a little "scratching" after the use of the powder, she had experienced no discomfort. The ulcer was decidedly cleaner, the upper edges much less infiltrated and there was apparently a cessation in the downward progress of the ulcer. The same treatment was repeated for three days in the course of which the

hypopyon had almost disappeared and the eye seemed to be on the high road to recovery. Unfortunately, the patient stopped coming, on the fifth day, so I cannot give you the final results of treatment. I have never seen more rapid improvement in hypopyon ulcer than under this treatment.

In answer to Dr. Charles's question as to how long I treated her before I began to use methylene-blue, I saw the patient on Monday and began it that very day, and again Tuesday, Wednesday and Thursday. Dr. Saxl tells me that he has used this treatment in several cases with uniform success.

*DISCUSSION.* Dr. Alt.—I have never used methylene-blue but almost exactly twenty-one years ago I reported to the St. Louis Medical Society my experiences with a preparation which was equally highly praised, if not more so and of similar character, if not exactly the same as methylene-blue and that was methyl-violet. I experimented with it very freely and very frequently for prolonged time in ulcers of the cornea. I did not use it in the same manner as Dr. Green used the methylene-blue, by powdering it into the ulcer, I used a stick made of methyl-violet, rubbed this over the whole ulcer, its edges and fundus, until all was stained deeply. My experiences, to make a long story short, were rather disappointing. One thing, however, I want to say, just like in Dr. Green's case, the patients always felt better; in some way or other it had an anaesthetic effect, some of the ulcers healed apparently quite rapidly, some did not do so well. Added to this was the disagreeable purple staining of the face and lids, which made the patients absolutely refuse to have it used again. As a general remedy, I have given it up, but I use it still once in a while in inflammation of the lachrymal sac, where I found it to act very well. It is, as we all know, a fact that all new remedies when first brought out, seem for some reason or other to do just splendidly in the hands of their discoverers for a series of cases and then other cases come in which they do not do so well. However, I shall try the methylene-blue in the manner recommended by Dr. Green.

Dr. F. E. Woodruff.—I have tried the methylene-blue not only in solution, but also in powder form in some ulcers of the cornea that were particularly deep seated and looked as though they were spreading and would probably result in perforation. and I have also used it where there was hypopyon and have always had immediate relief after the use of it. And I have seen it used in other cases which had gone on from bad to worse

under the treatment and a noticeable improvement began immediately after the use of it in solution or in powdered form.

Dr. Post. I would like to know from Dr. Green in regard to the staining qualities.

Dr. W. H. Luedde. In regard to the general use of the methylene-blue, I might add that, at the time I was in the City Hospital, we used it quite extensively in the treatment of acute urethritis. Dr. Rassieur, who is present this evening, can tell about the methods employed and the results obtained.

Dr. Louis Rassieur. Apropos of the action of methylene-blue powder upon bacteria, I made the following experiments twelve years ago while interne in the St. Louis City Hospital. I had a virulent strain of typhoid organisms. I made a bouillon culture of same and added sterile methylene-blue until the consistency became almost semi-solid. The organism was not killed but seemingly inhibited in growth, for the hanging drop showed immense blue sluggish bacilli. To a similar tube I added basic fuchsin crystals and the result was an active fuchsin-stained bacillus of almost normal size. To a third tube I added an excess of eosin. The result was a very short, almost coecal form of organism that was extremely motile. It is needless to add that new bouillon tubes inoculated from the above grew colorless typhoid bacilli.

Dr. Green, in closing.—The ulcer itself was stained quite deeply blue, the conjunctival sac was superficially stained, but it could be washed out with boracic acid solution without any difficulty. When the eye was opened the day following the first use of the methylene-blue, the gauze was stained blue, there was some pus on the gauze and skin surrounding had a few flakes of methylene-blue on it, but no stain.

In reply to Dr. Alt's question, I did not examine the pus microscopically.

J. D. CALHOUN, Secretary.

## NEWS ITEMS.

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. Walter Pyle of Philadelphia is spending the winter in Belleair, Fla.

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Dr. Wm. C. Bane has been elected secretary of the medical staff of St. Joseph's Hospital, Denver.

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Dr. Burton Chance has resigned as secretary of the Wills Hospital Ophthalmic Society.

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Dr. Benjamin C. Frazier has been appointed physician to the Kentucky Institute for the Blind in Louisville.

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The Eye, Ear, Nose and Throat Hospital of New Orleans has received \$100,000 by the will of the late Isaac Delgado.

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Dr. George Friebeis of the staff of Wills Eye Hospital, Philadelphia, died recently from heart disease, aged 65.

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The Baltimore Medical Society recently adopted resolutions opposing extending the practice of optometry.

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Dr. Robert A. Davis of New Orleans has been appointed clinical assistant in ophthalmology in Tulane University.

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Dr. John H. James of Mankato, Minn., has been elected president of the Southern Minnesota Medical Association.

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Dr. Harry Friedenwald and Dr. Hiram Woods of Baltimore have been appointed members of a committee to obtain subscriptions for a memorial to the celebrated surgeon, Dr. Finney.

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Dr. Burton Chance has been promoted to the position of Ophthalmic Surgeon of the Pennsylvania Railroad Company. Dr. Archibald G. Thomson, appointed Consulting Ophthalmic Surgeon.



Dr. Darius W. Barrett, an ophthalmologist of Detroit, Mich., died at Augustana Hospital in Chicago, January 27th last, aged 42.

The American Academy of Ophthalmology and Oto-Laryngology will hold the seventeenth annual meeting at the Clifton House, Niagara Falls, Ontario, August 20 to 22.

Dr. Edward Shumway has been elected ophthalmologist to the staff of the American Oncologic Hospital in Philadelphia. Dr. G. Oram Ring is a member of the consulting staff.

A. Isaac Friedman, M. D., a specialist on diseases of the eye, ear, nose and throat, of San Antonio, Tex., died at his home in that city, December 13, aged 52.

The Massachusetts Charitable Eye and Ear Infirmary recently received a bequest of \$2,000 by the will of the late Catherine Lamson, Dedham, Mass.

Dr. Harry J. Hornbogen of Marquette, Mich., has been elected secretary-treasurer of the Marquette Alger County Medical Society.

The new officers of the Section of Ophthalmology of the College of Physicians of Philadelphia are: Chairman, Dr. William M. Sweet and clerk, Dr. Thomas Hollaway.

Dr. Chas. M. Hammett has been elected president of the section on Eye, Ear, Nose and Throat of the Medical Society of the District of Columbia, and Dr. George Heitmuller, secretary.

At the annual meeting of the Chicago Ophthalmological Society, held January 15th, Dr. Thomas Faith was elected president, Dr. Cassius Wescott, vice-president and Dr. Richard J. Tivnen secretary-treasurer.

Prof. Horstmann of Berlin, noted ophthalmologist and pupil of Schweigger, died January 16th of cancer, aged 64. He was made chief editor of the *Archiv of Augenheilkunde* after the death of Schweigger, and was associated with numerous medical publications in Germany.

Dr. John O. McReynolds is interested in the campaign to raise \$1,000,000 for a new Methodist Hospital in Dallas, Tex.

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The St. Louis Medical Society is taking up the subject of defective children in a series of symposia. The eye conditions were discussed at the March 2nd meeting.

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Dr. Eugene Smith was selected president of the Detroit Oto-Laryngological Society at its recent meeting, and Dr. Emil Amberg, secretary-treasurer.

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Dr. Will Walter made the address of presentation of the new medical science room of the Evanston Public Library. The room is in honor of one of Evanston's oldest and best known physicians, Dr. Edward H. Webster.

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It was announced in this department recently that Prof. William Uhthoff had accepted the call to Berlin to succeed v. Michel. This has since been denied, and in addition both Prof. Hess of Wurzburg and Prof. Axenfeld of Freiberg have refused the same call. This condition is said to be due to the poor facilities for work in the Berlin University Eye Clinic and to the disinclination of men agreeably situated in the smaller universities to take up the strenuous life in Berlin. It is now rumored that Prof. Kruckmann of Konigsberg has been offered the Berlin position.

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“City Eye Clinic Assistant.—Dr. Joseph S. Neff, director of public health and charities, has asked Mayor Blankenburg of Philadelphia to recommend the appointment of an assistant ophthalmologist at a salary of \$800. Since the City Eye Clinic was started in 1908, 5,000 children with defective vision have been examined and of this number 3,695, or 75 per cent, were shown to have been backward in school. They were backward to the extent of 8,434 years, representing a money loss to the taxpayers of the city of \$295,190, based on the cost of instruction of \$35 a year for each child. At the present time, Dr. Lewis C. Wessels, the ophthalmologist, keeps the records and does all the clerical work, and in addition makes all examinations.”—(Journal A. M. A.)

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) Geo. F. Suker (P.-G.) (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Tusey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffman (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Illa. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (Inf.) H. W. Woodruff (Inf.) N. A. Young (P. & S.) Francis Lane (Rush) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) H. W. Woodruff (Inf.) N. A. Young (P. & S.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Alport (St. Luke's) Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (E. E. N. T.) J. B. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) Casey Wood (St. Luke's) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) Wm. E. Gamble (P. & S.)	H. H. Brown (Illa. Med.)	J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 119 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Abbreviations:	Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets Clinics all day.	Illa. Med.: Illinois Medical College, 182 Washington Blvd.		P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1410 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.		N. W. U.: Northwestern University, 2431 Dearborn Street.	

# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
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## ORIGINAL ARTICLES.

### A CONVENIENT ATTACHMENT FOR THE DE-ZENG ELECTRIC HEADLIGHT.

Illustrated.

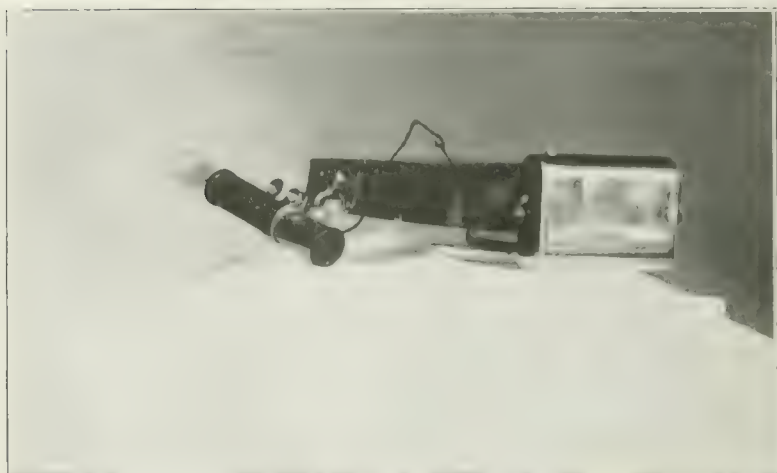
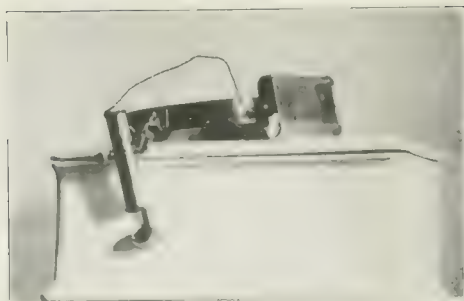
JOHN RAY NEWCOMB, M. D.

INDIANAPOLIS.

To obviate the necessity of employing the street current and rheostat with the DeZeng Electric Headlight I have had attached



to my headband a three and a half volt pocket battery and case, as shown in the illustration, which explains itself. The battery case is attached to the headband with a single metal strip one inch in width, with one rivet passing through its center, the strap being soldered to the case. The lamp employed is the three and





one-half volt tungsten, which can be purchased at any electrical store, as can the battery. The connection to the battery is made with a small screw plug such as is used on the small illuminated scarf pins and other novelties on sale. The advantages of this appliance are convenience, portability, independence of electrical supply, absence of conducting cords and rheostat, and the elimination of the otherwise very frequent destruction of lamps due to excessive current supply. I have found the device most satisfactory in every respect.

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**AN OPHTHALMOLOGICAL OBSERVATION OF  
CHARLES DICKENS DURING HIS VISIT  
TO AMERICA.**

BY SAMUEL HORTON BROWN, M. D.

PHILADELPHIA.

The widespread interest in Charles Dickens and his works, inspired recently by his centenary, has aroused various writers to refer to his impressions of America gained by his trip to this country in 1842, and it seems fitting that some passing mention be made to his observations concerning the Perkins Institution and Massachusetts Asylum for the Blind, at Boston, on the occasion of his visit to that institution.

His opening paragraph on this subject, as taken from his *American Notes*, refers to the fact that the institution is superintended by a body of trustees who annually report to the corporation. This, while not at all unusual, must have seemed novel to this gifted author, if his writings are any indication of the manner in which institutions of this character were managed in England at this time. The catalogue further interested him to the extent that he quoted from it that the indigent blind of that State are admitted gratuitously but those from Connecticut, Maine, Vermont, or New Hampshire are admitted by a warrant from the State to which they respectively belong or failing that, must find security among their friends, for the payment of about twenty pounds English for their first year's board and instruction, and ten for the second.

Continuing his quotation, he refers to the opening of an account with each pupil, in which the pupil is to be charged for the actual cost of his board, not to exceed two dollars a week, and he is to be credited with the amount paid for him by the State, or his friends, also with his net earnings. All over one dollar per week net earnings is to be his own. By the third year it will be

known whether his earnings will more than pay the cost of his board, and if they do he has the privilege of remaining and receiving his earnings. Those who are unable to maintain themselves by their work here are not retained.

It is curious to note that Dickens made no significant comment on this feature of the institution of relegating these individuals after only two years' trial to other institutions. It is exceedingly difficult to educate a totally ignorant person with good vision, to a self-sustaining position after so short a period of instruction, but no criticism, whatever, was made of this.

He was greatly impressed with the situation of the institution, and remarks how upon his visit the scene was so impressive to him as he contrasted the objects within the range of his vision with the great void on which a blind boy at his side gazed. His sympathy went out to the boy and he felt a kind of sorrow that the place should be so very light, and a strange wish that for the boy's sake it would be darker. He noted that at this institution, as at other American institutions at this period, no uniform was worn and he highly commended this feature. The good order, cleanliness, and comfort which pervaded every corner of the building, and the good feeling that existed between the teachers and the children came in for no small measure of praise from this gifted kind-hearted man. These features must have been in shining contrast to those of European institutions at that period.

The workshop was of special interest to him. Many individuals were employed in one of the shops, who had completed their manual training but were unable to ply their trade outside. He was struck by the cheerfulness, the industry, and the good order that pervaded this department as they did other departments of the institution.

Even at this period it is interesting to all of us to note that the musical education of these children was given attention, when any aptitude at all was shown. Dickens refers to the music-hall where the pupils were assembled and where he listened to a voluntary on the organ rendered by a blind boy of about nineteen, and a hymn played by a girl of about the same age which was sung in chorus by the other pupils.

His thoughts as he listened to this musicale are worth quoting: "It is strange to watch the faces of the blind, and see how free they are from all concealment of what is passing in their thoughts; observing which, a man with eyes may blush to contemplate the mask he wears. Allowing for one shade of anxious

expression which is never absent from their countenances, and the like of which we may readily detect in our own faces if we try to feel our way in the dark, every idea, as it rises within them, is expressed with the lightning's speed and nature's truth. If the company at a rout, or drawing-room at Court, could only for one time be as unconscious of the eyes upon them as blind men and women are, what secrets would come out, and what a worker of hypocrisy this sight, the loss of which we do so much pity, would appear to be!"

A very curious custom seems to have been in vogue at this time in the institution, that of binding a green ribbon around the eyelids of the pupils. He was deeply touched by one little girl who had a doll, around the eyes of which the child had fastened a green fillet such as she herself wore. The case of this little youngster was especially interesting as the pupil proved to be one of the earliest Helen Kellar phenomena in this country, and the details of the child's education absorbed considerable of Dickens' time and took considerable space in his notes.

This child's name was Laura Bridgman and she was born in Hanover, New Hampshire, in 1829. She was a sickly baby and subject to "fits." When she was 18 months old she began to rally and for a period of four months improved mentally and physically. Then she sickened again and her disease raged for five weeks, during which her eyes were inflamed and her ears suppurated. This terminated in the loss of hearing and sight, but the disease continued for several weeks. For five months she was kept in a darkened room and it was a year before she could walk unsupported. It was two years before she could sit up all day. Her sense of smell was almost entirely destroyed and her taste was very much blunted. At the time Dickens saw her she was thirteen years old and her sense of touch was her only intact special sense.

As soon as the child could walk, she began to explore the room, and then the house becoming familiar, meanwhile, with the form, density, weight, and heat of every article upon which she could lay her hands. By keeping close in touch with her mother during the performance of her household duties she learned to do several minor things and even to sew and knit a little.

As the opportunities for communication with the child were so limited, the progress of her education at home was correspondingly restricted, and the moral effects of her wretched state soon

began to appear. Consequently, when she was about 8 years old her parents were readily persuaded into bringing her to the Institution for further instruction.

She was much bewildered on her entrance, the notes read, but not until after two weeks was any attempt made to give her knowledge of arbitrary signs, by which she could interchange thoughts with others. The first experiments were made by taking articles in common use, such as knives, forks, spoons, keys, etc., and pasting upon them labels with their names printed in raised letters. These she felt very carefully, and soon, of course, distinguished that the crooked lines "SPOON," differed as much from the crooked lines "KEY," as spoon differed from the key in form.

Then small detached labels, with the same words printed upon them, were put into her hands; and she soon observed that they were similar to the ones pasted upon the articles. She showed her perception of this similarity by laying the label "KEY" upon the key, and the label "SPOON" upon the spoon. She was encouraged here by the natural sign of approbation, patting on the head. The same process was then repeated with all the articles which she could handle; and she very easily learned to place the proper labels upon them.

After a while the individual letters were given to her on detached bits of paper; first they were arranged to spell a word and then mixed in a heap, from which she was taught to select the proper letters and reassemble them so as to form a word. As she progressed in this stage of her education, she perceived that here was a way by which she could herself make up a sign of anything that was in her mind and show it to another mind; and at once her countenance lighted up with human expression. Her originality began to develop after many weeks of apparently unprofitable labor.

A set of metal types was procured with the different letters of the alphabet cast on their ends; also a board, in which were square holes, into which holes she could set the types, so that the letters on their ends could alone be felt above the surface. Then, on any article being handed to her, she would select the component letters and arrange them on her board, and read them with apparent pleasure.

After about three months she was reported as having just learned the manual alphabet, as used by the deaf mutes. She acquired this knowledge by grasping and feeling the hands of

the teachers while the signs were being made. This was in addition to her type method of expression, and soon by care and application she acquired an extensive vocabulary. Her physical condition improved materially while in the institution.

The notes are full of the details of the progress of this poor child's education. The dexterity she acquired in reading and writing, so to speak, the sign manual is referred to in wonder but the details of the first meeting of the child with its mother after having been in the institution six months, while taken verbatim from the institution's record, must have made a tremendous impression upon Dickens, and doubtless appears, paraphrased, perhaps, in some of his works.

A curious feature of this particular child was that when alone, she would soliloquise in the finger language. She also talked in her sleep through the same medium. Her tendency to imitation was strong but on the whole her education placed her character, thoughts, and emotions, for the most part, on the same plane as those of persons with all their senses intact. She had also learned to write with pen and pencil. Dickens refers with great praise to her instructor, Dr. Howe.

When Dickens first saw her he observed to himself: "There she was before me; built up, as it were, in a marble cell, impervious to any ray of light, or particle of sound; with her poor white hand peeping through a chink in the wall, beckoning to some good man for help, that an immortal soul might be awakened. Long before I looked upon her, the help had come. Her face was radiant with intelligence and pleasure. Her hair, braided by her own hands, was bound about a head, whose intellectual capacity and development were beautifully expressed in its graceful outline, and its broad open brow; her dress, arranged by herself, was a pattern of neatness and simplicity; the work she had knitted, lay beside her; her writing book was on the desk she leaned upon. . . . From the mournful ruin of such bereavement there had slowly risen up this gentle, guileless, grateful hearted being."

The notes contain a reference to another case in the institution, that of a boy, Oliver Casewell by name, who was also deaf, dumb and blind, and was also educated by the painstaking care of Dr. Howe. His case differed in minor details from that of Laura Bridgman but essentially the steps in the education were the same.

In concluding his lengthy observations upon these two chil-



dren, and they consume more space than any other single topic in his American tour, he says:

"Ye who have eyes and see not, and have ears and hear not; ye who are as the hypocrites of sad countenances, and disfigure your faces that ye may seem unto men to fast; learn healthy cheerfulness and mild contentment from the deaf, and dumb, and blind! Self-elected saints with gloomy brows, this sightless, earless, voiceless child may teach you lessons you will do well to follow. Let that poor blind hand of hers lie gently on your hearts; for there may be something in its healing touch akin to that of the Great Master whose precepts you misconstrue, whose lessons you pervert, of whose charity and sympathy with all the world, not one among you in his daily practice knows as much as many of the worst fallen sinners, to whom you are liberal in nothing but the preaching of perdition!"

1901 Mt. Vernon St.

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### BOILING COCAIN HYDROCHLORID.

In light of recent contributions as to the sterilizing by boiling of solutions of cocain hydrochlorid for use in local anesthesia, my experience may be of interest to some readers.

In my dispensary work as district physician for the Isthmian Canal Commission, I am daily called on to perform minor operations in which cocain solution is used to induce the desired anesthesia. I invariably use a 1 per cent solution and I invariably boil my solution for about two minutes over a spirit lamp before injection. I have never failed to obtain the anesthetic action of the drug and I have had no untoward symptoms in my patients. In such clean cases as digit amputations, circumcisions, etc., I know that by boiling my cocain solution I shall have no infection from the water used, which may have previously been faultily sterilized or may have become contaminated while standing, nor is there danger from the cocain itself, which may have become contaminated while being handled or while standing in the bottle.

The chemical change that takes place while boiling the solution must be so slight as not to be worth considering in actual work, as the results obtained have been in every way satisfactory after this method of sterilizing.

J. A. M. A.

ALFRED G. FARMER, Coroza, C. Z.

## CORRESPONDENCE

### INTRA CAPSULAR CATARACT EXTRACTION.

To the Editors of the OPHTHALMIC RECORD.

Sirs: Dr. Pontius' letter in your issue of May, 1911, consists of a lot of general statements which support the conclusions he wishes to be drawn; but none of them is accurate. They are, in every instance, gross exaggerations. For example, he states that I said offhand, "Here is a patient with vision  $=6/5$ ." I really said, "probably  $6/5$ ."

He states that I was "sweating" while extracting a normal lens in a patient with a high degree of myopia, and also states that I did not examine him to see what his myopia was. The sweating, according to him, was due to abnormal physical exertion. This in a man of powerful physique (6 feet 1 $\frac{1}{2}$  inches and weighing 17 stone) is absurd. He forgets to add that sweating in the tropics in the hot season is a daily occurrence. He also forgets to add that the patient was wearing 15 D. spectacles with which he had difficulty in making out print at three inches, implying that his refraction was nearer  $-30$  D. than the 15 D. which he was wearing. As a matter of fact I told Dr. Pontius and those present that it was extremely difficult to dislocate a normal lens in a boy of 18, and that I would not advise them to try until they had a high degree of skill in the art.

Every one of Dr. Pontius' statements is equally exaggerated and I consequently decline to discuss them as American ophthalmologists know Dr. Pontius' standing in the treatment of cataract.

It is curious that Dr. Pontius does not attempt to reconcile his facts and the facts of Major Kilkelly, the only issue in his letter which concerns science. He pays a tribute to the many American and other ophthalmologists who have done me the honor of visiting my clinic when he implies that they are all prevaricators except himself. He quotes Mr. Teacher Collins. I have no objection to Mr. Teacher Collins entering the lists, but I decline to do so through the medium of Dr. Pontius.

Very truly yours,

HENRY SMITH, Lieut-Col., I. M. S.,

Amritsur, Punjab, India.

[As both the parties to this controversy have had an opportunity of stating quite freely their views of the matter, it would, we think, be well to regard the incident as closed.—ED.]

## REPORTS OF SOCIETIES

### COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF JANUARY 20, 1912.

DR. J. A. PATTERSON PRESIDING.

#### Magnet Extraction.

Dr. A. C. Magruder presented a man whose right eye had been penetrated by a piece of steel on December 4, 1911. Seen two hours after the injury, the wound in the cornea was closed, but there was a gaping wound in the iris 1 mm. from the temporal margin. There were vitreous opacities, but the lens was clear and the fundus well seen. The pupil was dilated with solutions of cocaine, homatropin, and atropin, used in the order named and five minutes apart. With Dr. Patterson's assistance an unsuccessful attempt was made at magnet extraction. An X-ray examination showed the foreign body to be placed 0.38 inch back of the eyelid. After this, and on the afternoon of the day of the injury, extraction was done with the magnet, the foreign body following the route of entrance except that it had to be coaxed over the edge of the iris through the pupil. A very careful examination had failed to discover the foreign body in the eye before removal. In 24 hours a stellar cataract consisting of 11 distinct spokes had formed. The high frequency current was used. The spokes now coalesced at the point of entrance of the foreign body, but five could still be counted. Vision without glass was now 4/200, and with the pupil dilated and +2. D. lens 20/20.

**DISCUSSION.** In reply to a question by Dr. Strickler, Dr. Magruder stated that the reason for the combined use of the three mydriatic drugs was that it was desired to obtain (1) prompt dilatation by means of the action of cocaine on the radiating muscular fibers, and of the homatropin on the sphincter fibers, and (2) lasting dilatation from the atropin.

Dr. Friedmann.—The most interesting feature of the case was the arrest of development of the incipient cataract. Was the interference with the nutrition of the lens counteracted by the high frequency current?

Dr. Walker.—After so successful an operation, he was surprised at the patient's statement that he couldn't see.

Dr. Black.—This lens would all become clear in time. He

referred to a case which he had reported some years back, in which a piece of copper remained in the lens, which did not begin to become opaque for three months.

Dr. Neeper. The chance of preserving these lenses depends on immediate mydriasis, while the capsule wound remains open. This prevents admittance of the aqueous by movements of the ciliary muscle and lens.

Dr. Patterson thought it likely that the foreign body had had to make a complete revolution before passing the iris.

Drs. Strickler and Neeper commented on possible refractive changes in the lens apart from the formation of the cataract.

Dr. E. R. Neeper reported the case of a man of 43 years whose right eye had been penetrated by a piece of iron from a water pipe which was being chiselled. The fragment measured 5 mm. by 5 mm. by 1.5 mm., and entered at the nasal limbus. When the patient was seen, an hour after the accident, the anterior chamber was full of blood, and fresh hemorrhage occurred daily for about three weeks. Magnet extraction through the wound of entrance was done with the help of Dr. Patterson about two hours after the injury occurred. There had been a good deal of pain in the eye, but never much ciliary injection. There was an iridodialysis involving the lower two fifths of the iris, and anterior synechia with the site of wound. V was movements, and the eye had become practically quiet. The wound of entrance had to be slightly enlarged to permit of exit of the fragment, which also had to be tilted with a pair of forceps before finally escaping from the surface of the eye under traction of the magnet.

**DISCUSSION.** Dr. Bane remarked that the eye would probably be lost on account of the injury to the ciliary region; and that the other eye would have to be carefully watched for indications of sympathetic disturbance.

### Question of Operation on Soft Blind Eye.

Dr. Neeper asked for the opinion of the members as to the prospects from operation on a case of softened eyeballs with occlusion of the pupils and no light perception; he having advised against operation, for which the patient was anxious.

All the members present were agreed that no operation could restore sight in this case.

### Protruding Optic Disks with High Hyperopia—Cholesterin Crystals on Disks.

Dr. Neeper presented a woman whose optic disks were elevated 2 D. above the general fundus level. She was hyperopic about 6.50 or 7 D., with 1.50 D. of hyperopic astigmatism. The disk margins were hidden, but no hemorrhages, exudates, or evident changes in the caliber of the vessels could be made out. On the disk and on the retina in its vicinity were numerous cholesterin crystals. The patient complained of a great deal of frontal and occipital headache. The vision was not greatly below normal. The fields were negative. Wassermann reaction was negative. The patient was apparently free from any nasal disturbance. The eye condition had not changed materially for several years.

*DISCUSSION.* Dr. Black. The optic disk is liable to be raised above the level of the surrounding fundus in cases of high hyperopia. The case first appealed to him as one of choked disk, but this was rendered improbable by the long history of the case.

Dr. Coover had thought of a neuro-retinitis, but did not believe the case was of that nature.

Dr. Friedmann had seen cholesterin crystals in a cured case of acute Bright's disease.

Dr. Libby would like a thorough study made of the kidneys and blood pressure.

Dr. Hosmer thought there was nothing pathologic about the case, which he was disposed to call a pseudoneuritis.

Dr. Patterson thought an inflammatory condition had existed at some time.

### Conjunctivitis with Facial Dermatitis.

Dr. Neeper presented a case of conjunctivitis associated with a dermatitis of the face, which had been treated by the patient, a drug clerk, with a variety of applications and had finally yielded to sulphate of zinc. There was no mucoid secretion such as would be associated with a diplo-bacillary infection.

*DISCUSSION.* Dr. Black recommended the combination of boric acid with sulphate of zinc to reduce its irritating effect.

Dr. Libby referred to a case of conjunctivitis that had been treated with protargol and argyrol without success, showed only staphylococci in the secretion, and got well and stayed well after treatment with saturated solution of boric acid.

Dr. Bane suggested calamine lotion for the dermatitis.

Dr. Patterson recommended acetate of zinc and boric acid.



**Thrombosis of Central Retinal Vein.**

Dr. Hosmer and Dr. Patterson presented a man of 60 years, first seen by the former on September 30th, 1911, with a typical thrombosis of the central retinal vein in the left eye. The blood pressure was 226 mm. Hg. The fundus had been dotted with areas of hemorrhagic retinitis, in a relatively large one of which the macula was involved. On the 21st of October, with the affected eye, the patient distinguished the upper parts of fingers at two feet. In the right eye the same patient presented a peculiar crescent, apparently of connective tissue, lying across the upper edge of the disk and obscuring the retinal vessels at that place. It had not the appearance of opaque nerve fibers.

**Gumma of Brain After Salvarsan.**

Dr. E. M. Marbourg presented, on account of the disturbance of the optic nerve involved, a man who eight months earlier had had a dose of salvarsan, and then after six months had developed a gumma of the brain, which had yielded to anti-syphilitic treatment. There had been marked choked discs and retinal hemorrhages, but the eyes had returned to normal.

**Embolus of Central Retinal Artery.**

Dr. E. M. Marbourg presented a man aged 30 who had become suddenly blind in the left eye while stooping over to tie his shoe. When he was first seen, one week after the accident, the vision of the eye was nil. The macula was seen as a cherry red spot through a general retinal edema. No syphilitic history was obtainable, urinary analysis was negative, and the blood pressure 165 mm. Hg. Vision had improved to 20/200+.

**DISCUSSION.** Dr. Black called attention to the possibility of determining by pressure on the eyeball the amount of circulation in the retina. Where the circulation was very feeble, it was easy to completely blanch the vessels; this became harder as the circulation was re-established. The effect of pressure in emptying and refilling the vessels might explain the benefits obtained from massage in such cases.

Dr. Hosmer referred to a case of venous thrombosis in which he had made pressure on the eyeball as recommended by Dr. Black, and the vision had gone to the bad for three days; but the final result of the case was phenomenally good, vision of 5/6 being reached.

**Cerebral Tumor.**

Dr. E. M. Marbourg presented a girl of five years, with choked disks, retinal hemorrhages, and patches of retinal degen-

eration. She suffered from paroxysmal headaches, complained of pain back of the neck, and had projectile vomiting. The patellar reflexes were nearly abolished, the child was unable to stand alone, and there was a tremor in the arms. The pupils reacted sluggishly and were dilated. The father acknowledged having had syphilis, and also stated that the child had fallen from a bicycle three months previously.

**DISCUSSION.** Dr. Friedmann favored the idea that meningitis in some form was present.

Dr. Hosmer had noticed the presence of otitis media, which suggested that the condition might arise from the middle ear.

Dr. Black commented on the immense edema of the retina and the widespread degenerative changes; and thought the diagnosis lay between tubercular meningitis and glaucoma.

#### **Tuberculous Keratitis.**

Dr. Magruder presented a girl of seven years, who had a history of suffering from sore eyes for five years. After various other lines of treatment, the eyes had cleared up rapidly under mercurial inunctions. In December, 1911, Dr. Patterson had seen her on account of acute adenitis, with a high temperature; and shortly after this attack the corneas got very bad again. A second clearing took place under mercury, but was followed by another relapse. A Wassermann test had been negative, but a Moro tuberculin test had twice proved positive. Tuberculin had not yet been given therapeutically.

**DISCUSSION.** Drs. Black and Neepcr concurred in regarding the case as one of tuberculous keratitis.

Dr. Coover had had two cases of tuberculous keratitis and one of tuberculous cyclitis. The former had been on tuberculin since July 1911 and were almost well. He had a dose, at first a very small one, of old tuberculin, given every fifth day, had the temperature taken three times daily for the first day or so after giving each dose, and gradually increased the dosage. He was in favor of trying tuberculin in cases of interstitial keratitis that were negative to the Wassermann test.

#### **Coloboma of the Iris.**

Dr. Patterson presented a young woman who had bilateral coloboma of the iris. She had consulted him on account of photophobia and headache. Corrected vision was R. 5/7 and L. 5/7 part. The colobomata were almost symmetrical in every respect. Both extended directly downward from the pupils, their pillars blending gradually with the pupils above, and converging be-

low toward the corneal limbus. The right one just escaped involving the whole width of the lower part of the iris, the left one apparently reached to the ciliary body.

### **Retinal Hemorrhage.**

Dr. Patterson presented a woman 36 years of age who had consulted him on Nov. 4 on account of failure of vision in the left eye. V. was then R. 5/4, L. 5/40. The lower temporal area of the left retina showed a number of irregularly placed blood clots, reaching to the edge of the left macula and apparently arising from the lower temporal vein. The urine was negative. She had a history of having to strain habitually at stool. She had been married seven years, and had had two miscarriages, one attributed to a fall downstairs. She had been treated with iodide of mercury, potassium iodide and high frequency current. By Dec. 18 almost all the blood was absorbed. On Dec. 26 Wassermann was negative. Corrected vision of the eye on that date was 5/5 part.

**DISCUSSION.** Dr. Black referred to a young man whom he had seen first five years previously with a retinal hemorrhage, and who had recently had a sub-hyaloid hemorrhage obscuring the entire disk. His heart was sound, and blood pressure only 127 mm. Hg., but on deep pressure the radial artery indicated arteriosclerosis. Pressure on the good eye failed to exsanguinate the retinal vessels.

Dr. Neepor referred to a case which he had seen that evening, in which the vessels presented the appearance of a broken column of mercury in a thermometer. Vibratory massage had seemed to make the column of blood more continuous.

ELLET O. Sisson,

*Secretary.*

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## **COLORADO OPHTHALMOLOGICAL SOCIETY.**

MEETING OF FEBRUARY 17, 1912, IN DENVER

DR. W. HILLIARD, PRESIDING.

### **Uveitis Possibly Due to Menstrual Disturbance.**

Dr. W. C. Bane presented a young woman of 20 years on account of vitreous and corneal disturbance of obscure origin. In July, 1910, she was refracted on account of headaches, corrected vision being R. 4/3, L. 4/4. In April, 1911, her distant vision became indistinct and she saw a halo around lights with her right eye. There was no pain, but a tired feeling, in the eyes; and at times headache. On May 6th, V. with the old glasses was R. 5/30

and L. 5-10. Six superficial punctate spots were found in the right cornea, and two in the left. The pupil reactions were normal. The vitreous of the right eye was quite hazy. After seven weeks' treatment (dionin, mercury, potassium iodide, and general tonic), R vision had improved to 5-10. Seven months after beginning treatment, the patient having taken no medicine for two months, vision was R. 5-10 and L. 5-10+. A change in the refractive correction resulted in vision of 5-5+ in each eye. On February 17, 1912, there was a slight vitreous haze in each eye, and corrected vision was 5-6+ in each eye. A possible indication as to the etiology of the case had been furnished by the patient's grandmother two days before the meeting. Following a river bath taken during her first menstrual period at the age of 12 years, menstruation had been very irregular and painful, a membranous cast being often thrown off. There was also constant leucorrheal discharge, at times very offensive. Absorption from the diseased genitalia was suggested as a cause of the eye disturbances.

*DISCUSSION.* Dr. Libby had seen a case of marked hyalitis undoubtedly caused by la grippe, which he thought to be more frequently a cause of hyalitis than was generally supposed.

Dr. Neepor discussed the use of dionin, which he favored giving every other day or less often, so as to avoid tolerance, which might result from more frequent dosage.

### **Glaucoma with Intraocular Hemorrhage.**

Dr. Melville Black presented a man aged 40 years in whose left eye glaucoma had developed in July, 1911. The eye became almost blind in three weeks. Under eserine and subconjunctival injections of sodium citrate (15 minims of 4½ per cent solution) there had been temporary reduction of tension and some relief from pain. The pupil continuing to dilate in spite of the use of eserine every two hours, a posterior sclerotomy was performed; but although pain was relieved and tension reduced, next day the anterior chamber was full of blood. This was absorbed and the eye remained quiet; but ten days ago the patient returned with tension +2 and the anterior chamber again full of blood. Enucleation had been advised.

*DISCUSSION.* Dr. Hosmer suggested investigation by means of transillumination of the question of intraocular tumor.

Dr. Neepor referred to a case of glaucoma in which sodium citrate had at first seemed to help but later acted as an irritant.

Posterior sclerotomy, and then under the same anesthetic iridectomy, were done. Vision had been practically nil for several days, but in spite of some lens disturbance had now improved to 20/30.

Dr. Bane, on ascertaining from Dr. Black that the fundus had been seen early in the case, did not regard tumor as likely, but would remove the eye.

Dr. Jackson referred to a personal case in which posterior sclerotomy had been followed by hemorrhage from the fundus, after which iridectomy had been done with advantage. He thought these hemorrhages due to the sudden reduction of tension.

**Choroidal Changes Perhaps Due to Cranial Trauma.**

Dr. G. F. Libby presented a man of 62 years, who gave a history of having received a blow on the occiput in 1861, and a severer head injury in 1878, after which failing vision was soon noticed. The sight had been lost in the right eye, but gradually improved in the left, which now had normal vision with +0.75 sph. +1.00 cy. ax. 150°. The bridge of the nose had been crushed in 1898. The ophthalmoscope showed chorioretinal degeneration in the central region, with pigmentation, in each eye; the changes being more marked in the right eye, in which they involved the macular region. There was no evidence of syphilis, which was denied. The patient stated the improvement of vision in the left eye to have been very gradual.

**DISCUSSION.** Dr. Bane thought the appearances likely due to traumatic hemorrhage.

Dr. Jackson thought the history as regards the eyes was not enough to form an opinion as to the etiology.

Dr. Black suggested the possibility of a combination of choroidal rupture with hemorrhage.

Dr. Patterson, who had examined the patient with regard to specific disease, stated that there was no sign of loss of septal tissue, but a marked deflection supported a traumatic cause of the depressed bridge. The central accumulation of pigment in the affected areas favored the probability of hemorrhage.

**Absorption of Old Traumatic Cataract After Iridectomy for Glaucoma.**

Dr. W. A. Sedwick presented a patient whose case had been reported to the Society in 1911 on account of the relief afforded by subconjunctival injection of sodium citrate during acute glaucoma. Since then iridectomy had been done. The man, who was 58 years of age, had had a traumatic cataract for 18 years in



this eye, the lens being quite opaque. On meeting the man on the street recently he had declared that vision was steadily improving ever since the iridectomy. There had not been an opportunity for detailed study of the case, but the cataract had disappeared, and the iris was tremulous. Had the capsule been accidentally ruptured in doing the iridectomy, with resulting absorption of the lens?

*DISCUSSION.* Dr. Black had thought at first that the lens might have slipped down, but the capsule could be well seen by lateral illumination. He saw the fundus well with  $+7$ . D.

Dr. Neepser suggested needling of the capsule.

Dr. Libby thought an increase in the opacity of the capsule likely.

Dr. Jackson did not think there could be any nucleus left, as he could see the fundus with a  $+9$  lens. Remembering that the man had the cataract since he was 25 or 30 years old, he probably had never had a hard nucleus in the lens. Very possibly the capsule had been touched (or cut), and this had caused the clearing. He recalled a case in which after a hard cataract had been removed from one eye cataract had undergone absorption from the other eye.

Dr. Patterson recalled a case in which the capsule had ruptured, glaucoma had followed but the patient had refused operation, and most of the cortex had become absorbed.

#### **Deep Linear Cauterization for Ectropion.**

Dr. W. A. Sedwick reported successful results from deep linear cauterization in a case of marked bilateral ectropion. The cornea had been so hazy that the patient could scarcely read; and after doing the Ziegler puncture operation without benefit, he made a deep linear cut about 6 mm. below, and parallel with the edge of the lid with the cautery knife. After that he did not see the man for four months, at the end of which time he came to report the excellence of the results. The lids were drawn up into normal apposition with the eyeballs, and the man was quite comfortable.

*DISCUSSION.* Dr. Black had seen a lot of good come from the use of massage for ten minutes night and morning in such cases.

Dr. Patterson. This operation was done by Tiffany of New York some years ago.

Dr. Jackson suggested that the cartilage had been pretty well destroyed.

### Ocular Injury from Oil of Cloves.

Dr. G. F. Libby reported the case of a druggist who had broken a two-drachm vial of oil of cloves and received the contents in his eyes. The patient had washed out the eyes with water and then with alcohol, and instilled adrenalin. When examined an hour later, there were severe blepharospasm, lachrimation, conjunctival edema, and pain; the right cornea was partially denuded of epithelium, and the left wholly so; the right pupil was moderately dilated and the left ad maximum; and R. V.= 5/30, L. V.= 5/22. The treatment consisted of homatropin and holocain (each in vaselin), bandage, and rest in bed. In two days the right corneal epithelium was restored, the left nearly so; and vision was R. 5/9, L. 5/15. In another four days all discomfort had ceased. Three weeks after the injury vision and use of the eyes were normal, but a thin linear scar remained opposite the lower pupillary space of the left eye. As the patient had used no mydriatic prior to the first examination, the mydriasis was to be attributed to the effect of the burn.

**DISCUSSION.** Dr. Neeper considered that in cases of traumatism without infection the main thing was to close the eye; using an oily solution of yellow oxide of mercury or some other oily preparation to protect the eye.

Dr. Black referred to a case of curling iron burn of the cornea in which the epithelium had been restored in 24 hours after applying bichloride salve and closing the eye.

### Diplobacillus Conjunctivitis After Cataract Operation.

Dr. Edward Jackson exhibited a smear, taken 19 days after operation, from an eye on which cataract extraction with iridectomy had been done. The patient was 59 years of age, and healing after operation had been uninterrupted, but for several days before the smear was prepared there had been slight but increasing discharge and conjunctival hyperemia. The smear showed Morax-Axenfeld diplo-bacilli in great abundance.

### Sympathetic Irritation Due to Aluminum Globe.

Dr. Edward Jackson reported a case in which repeated attacks of uveal irritation had been due to the presence in the sclera of the other eye of an aluminum ball. The sight of the right eye had been lost after numerous attacks of irido-cyclitis probably specific in character. In 1909 a Mules operation had been done by another physician, using an aluminum ball. Two years after this operation an attack of inflammation occurred in

the right eye, and some time later the left began to be affected. The sclera and ball were enucleated on November 4, 1911, and the left eye had become quiet since. The aluminum ball, which was shown, had become decidedly rough at a number of points, the most marked of these being at about the posterior pole of the eye, where the sclera was bulged conically. At points corresponding to the erosions of the ball, were patches of crumbly degeneration of the scleral tissue next the aluminum.

*DISCUSSION.* Dr. Black had had satisfactory experience with a ball of paraffin, melting point 140°; and thought that if Mules' operation was to be done paraffin was the best thing to use.

Dr. Libby thought Dr. Jackson's case illustrated the superiority of enucleation over evisceration.

Dr. Bane had tried paraffin, but favored enucleation as leaving the greatest possible security against complications.

Dr. McKeown referred to the use by Lauber of fat from the belly wall.

Dr. Coover had never had success with Mules' operation. The ball usually came out. He now inserted a gold ball into the capsule.

### **Sarcoma of Orbit.**

Dr. Edward Jackson presented specimens illustrating a case of sarcoma of the orbit. The patient, a colored woman, had been first seen in October, 1910, when she stated that her right eyelids had begun to swell four months previously. There had been a very extensive swelling in front of the right ear. The patient had also had a number of pronounced syphilitic lesions, for which she had been treated. The right eye then protruded 4 or 5 mm.; and through the thickened upper lid an edge of firm tissue could be felt under the upper orbital margin. Except that the veins were double the normal size, the fundus was normal. There was tenderness over the lacrimal gland. The patient was not seen from October, 1910, to February 5, 1912, when she returned for operation. The eye protruded about 30 mm. and was blind. Two days later the eye was removed, when the orbit was found filled with a firm immovable tumor mass. Exenteration of the orbit was then done, the periosteum stripping freely to near the apex of the orbit, which seemed free from tumor. The conjunctiva and other tissues were removed from the skin of the lids, and the lid margins cut off, including the roots of the lashes. The skin

of the lids was pushed against the orbital walls. There had been steady granulation of the bone surface, with the exception of a small area over the os planum. Some suppuration persisted from the apex of the orbit.

ELLET O. SISSON,  
Secretary.

## ST. LOUIS MEDICAL SOCIETY, ST. LOUIS, MO.

OPHTHALMIC SECTION, JANUARY 3, 1912.

BY DR. W. H. LUEDDE.

### Multiple Gummata at Inner Canthus Simulating Dacryocystitis.

Mrs. Z., aged 36, had been treated for several weeks by the usual methods without result. An unwarranted incision over the swollen mass at the inner outline had been made previously at a dispensary, evidently with the hope of reducing the swelling by such drainage. It was ineffective.

Free passage of fluid to the nose on injection into either punctum, the persistence and even increase of the swelling, in spite of free drainage, together with its consistency and location, raised the suspicion of lues in the absence of any history of the disease. Small doses of K. I. proved of no avail. These had been given at the beginning before the luetic nature of the trouble was recognized. Large doses brought about a prompt and complete cure.

### Congenital Absence of Both Lower Puncta—Lifelong Dacryocystitis—Apparent Cure from Dacryocystorhinostomy.

BY DR. W. H. LUEDDE.

Absence of the puncta lacrimalis was found recorded but three times. In two of them the lower puncta was missing as in this case.

T. G. (a Greek laborer), aged 23, sustained a perforating injury to his left eye followed by panophthalmitis and enucleation. Smears from the vitreous showed diplococci (probably pneumococci) similar to those present in almost pure culture in the secretion from the Lacrimal Sac, indicating a probable source of infection. Examination showed the total absence of either lower punctum and its tubercle and canaliculus. The upper puncta seem normal. Double Dacryocystitis has existed as long as the patient could remember. A passage in the direction of the normal

canal could be probed and washed through to the lower meatus of the nose on each side, but the treatment had to be intermittent and results were unsatisfactory until the direct opening into the lachrymal sac was made from the nose by Dr. Bryan. Good drainage with the cure of the chronic inflammatory process thus secured greatly increases the patient's comfort and safety. Its permanency may be doubted.

### **Degenerative Changes Following an Embolus in a Branch of the Inf. Temp. Retinal Artery.**

BY DR. W. H. LEEDEE.

A clinical picture of an obstruction in the retinal artery or any of its branches is strikingly typical. The subsequent changes in the retinal tissues are not such as to greatly modify the ophthalmoscopic appearance, usually involving destruction of the ganglion cells while the outer layers of the retina remain intact. This patient, a young woman 18 years old, suffered from retinal embolism six months ago, was presented to show the secondary changes. When first seen, thirty-six hours after the first symptom of the attack, central vision was no longer impaired, but an absolute scotoma in the form of a sector or quadrant of the upper segment of the field of vision existed which has remained constant. It extends from  $25^{\circ}$  on the temporal side to  $60^{\circ}$  on the nasal side of the vertical at its periphery and is  $15^{\circ}$  across at the apex just above the point of fixation. The location of the embolus could be made out with the ophthalmoscope at the second bifurcation of the inf. temp. artery. The column of blood was broken in the vessel and in all its branches beyond this point. The area of the retina involved was defined by its pallor and edema. A week later the affected vessels were again filled except the smaller branch at the point of bifurcation, which had supplied the retina immediately below the macula. This latter artery has gradually disappeared until now only a faint blurred trace of it remains, marked by partially absorbed blood pigment probably the result of secondary hemorrhages into its adventitia. A few yellowish granules below the macula are the only other phenomena demonstrable which could be ascribed to this accident to the retinal circulation.

An examination into the general condition revealed a mitral stenosis, a condition often producing emboli in the general circulation. Menstruation had begun twelve hours before the attack. The diagnosis of embolus was rendered probable by the sudden



onset of complete blindness which in a short time became partial as the plug was pushed toward the periphery, by the general findings, and by the fact that examination of the patient who had previously presented herself for treatment several times, on account of eyestrain, showed no retinal disease.

Following Dr. Luedde's paper, Dr. W. C. Bryan read a paper on an operation designated by Fuchs as Daeryocystorhinostomy. This operation was performed by Dr. Bryan on Dr. Luedde's patient and the patient exhibited. The operation consists essentially in making a window from the nasal side directly through to the lowest part of the lacrimal sac without in any way disturbing the dermal surface. This operation is considered as being more satisfactory in its results than extirpation of the sac, although the permanent patulousness of the window is questioned by some ophthalmologists.

*DISCUSSION.* Dr. Sahan: I would like to ask Dr. Bryan if he thinks the method employed would be effective in cases of chronic daeryocystitis in children seven or eight years old.

Dr. Green.—About eighteen months ago a patient entered the City Hospital with an extensive lacerated wound of the lower lid sustained in a drunken brawl. There was an irregular wound which passed through the lower canaliculus and extended 4 cm. down and out on the cheek. After the primary swelling had subsided I sutured the cut edges, obtaining primary union throughout. At the operation I was unable to find the inner cut end of the lower canaliculus, so that when healing was complete there was an annoying epiphora. A probe entered through the upper canaliculus encountered a fibrous band at the entrance to the bony duct. I made an opening in the conjunctive just at the base of the caruncle, and thence by scissors dissection, worked my way into the sac. Through this opening a silver style corresponding to Bowman 6 was passed into the bony duct and allowed to remain in it one month. One week after its removal, I was chagrined to find that the artificial opening had closed. As the patient was compelled to remove from the city, I was unable to follow up the case.

I believe that with a large direct opening into the sac (as in the operation performed by Dr. Bryan) an artificial canaliculus would be more likely to remain patulous, and I should be inclined to advise daeryocystorhinostomy in a case similar to the one cited.

Bryan. I cannot speak with any feeling of assurance about children. I do not know that they differ from adults and I should think a well drained sac might even work with them as with older persons. Dr. Green's case might be satisfactorily treated if the drainage could be made as free as it seems to be in the case under consideration.

## SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING JANUARY 18, 1912.

DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

### **Obstetric Injury.**

Dr. Posey presented a case of obstetric injury to the eye. A patient, a man, aged twenty-three years, presented a vertical scar at the outer canthus, and atrophy of the optic nerve. His mother stated that the labor had been a prolonged one, that forceps had been used and that the tissues at the outer part of the eye were much swollen for three months afterward. Dr. Posey was inclined to attribute the atrophy of the optic nerve to an orbital cellulitis and not to avulsion at the time of the labor, as he thought in the latter event that the external rectus muscle would have been palsied, whereas it now acted normally.

### **Juvenile Tabes.**

Dr. George E. Price and Dr. Charles E. Shannon reported the case history of a girl, aged fourteen years, with juvenile tabes and double primary optic nerve atrophy. Up to the age of eleven years the patient enjoyed good health. From that time her vision began to fail and at the end of two and one-half years, despite treatment, her sight was almost totally destroyed. Ocular examination showed the following facts: Pupils unequal, pupillary reflexes absent. The ophthalmoscope revealed almost complete primary atrophy of both disks. The fundi were in other respects healthy. The neurological examination showed slight ataxia of upper extremities; weakness of the bladder sphincter, with absence of the patella tendon and Achilles tendon reflexes. There was neither ankle clonus nor Babinski sign, and no hysterical stigmata. Dr. E. Burville Holmes reported a positive Wassermann reaction. Examination of the cerebrospinal fluid by Dr. George F. Lull revealed an increased amount of albumin but no lymphocytosis. On examination of the family history it was found that the mother had led an immoral life prior and

subsequent to marriage. She had one miscarriage. Father's history negative.

The subject of tabes in the young presents many interesting features, among which should be mentioned its extreme rarity, infrequency of marked ataxia, the usual presence of optic atrophy, and the fact that females are affected more often than males. Although cases have been reported as resulting from acquired lues, transmitted syphilis is the usual cause, and the age of its appearance is usually about fifteen years.

Dr. Howard F. Hansell said that it was not with the purpose of contesting the diagnosis, or even with the assumption that this patient was not suffering with juvenile tabes, that he asked the authors whether they had considered, in their careful analysis of the symptoms exhibited by this patient, the possibility of tumor of the pituitary body.

The total atrophy of the optic nerves; the sizes of the pupils, midway between contraction and dilation and both irresponsive to light or attempts at accommodation, and the paralysis of the superior oblique of the left eye, are, it is true, not distinctive of pituitary disease, but they may be explained by gradual enlargement of that gland and slowly advancing pressure upon the chiasm. Curiously, the patient has photophobia when exposed to ordinary daylight, explainable only on the ground of irritability of the fifth pair, a not uncommon symptom of pituitary disease. The loss of knee-jerks and the incontinence, while not conclusive, however, strongly support the diagnosis of infantile tabes.

Dr. Langdon stated that so far as the pupillary condition was concerned it seemed to point to an optic atrophy accompanying tabes rather than one from some intracranial growth, since in the latter the blindness would produce pupils which were widely and equally dilated and non-responsive to light, whereas the pupils in this case were only moderately dilated and were unequal.

Dr. Price in closing the discussion said that he was not surprised that Dr. Hansell should raise the question as to the diagnosis, owing to the rarity of the condition. When first seen the case suggested the possibility of insular sclerosis, but this was eliminated on account of the absence of the characteristic symptoms and the presence of the Wassermann reaction. Dr. Price did not consider the diagnosis of a pituitary tumor probable

for the following reasons: There was no papilloedema; no nausea or vomiting; no hemianopsia; no symptoms of acromegaly or of infantilism, the patient having menstruated regularly since she was thirteen years of age; and lastly, the presence of urinary incontinence indicating a spinal lesion. The diagnosis he believed rested between cerebrospinal syphilis and juvenile tabes. The fact that the optic atrophy was primary and the patient had no headache for two years was against cerebrospinal syphilis. Her present headache did not prevent her from sleeping well, and we all know that the headache of syphilis is intense and worse at night. Moreover, her clinical symptoms were those of juvenile tabes and not such as we usually see in lues of the nervous system.

### **Primary Intradural Tumor of the Optic Nerve.**

Dr. G. E. de Schweinitz described the case history of a patient with primary intradural tumor of the right optic nerve as follows: The patient, a boy, twelve years old at the time of operation, presented nothing of importance in his family history, but when he was between his third and fourth years had suffered from convulsions; one convulsion also occurred in his sixth year. Exophthalmos was first noted when the child was about five years of age, and gradually increased, with progressive atrophy of the optic nerve without preceding neuritis or choking of the disk. X-ray examination indicated absorption of bone or bulging of the walls of the orbit outward, but nothing else. The eyeball was displaced forward and downward, and Hertel's instrument recorded 30 mm. At the operation a neoplasm, not unlike the shape of the eyeball itself, was found growing from the optic nerve, with a small portion of uninvolved nerve between the anterior part of the growth and the posterior portion of the eyeball. The growth was dark red in color, entirely encapsulated, 3.5 cm. in length, 2.5 cm. in width, and 3 cm. in depth. On section it was seen that the tumor proceeded from the nerve in a fan-shaped area and was entirely covered by a dural capsule. It was composed, in general terms, of a connective tissue, through which were scattered numerous nuclei, together with swollen and edematous nerve fibrils. In some of the sections cells exactly like ganglion cells were present. A neuroglial hyperplasia was not demonstrable. Either the growth had begun in very early life, or more probably it was congenital.

Seven months after operation, at the time of report, there

had been no recurrence, nor were there any signs of intracranial involvement.

Dr. Langdon stated that in the *Transactions of the Ophthalmological Society of the United Kingdom* there were reported 4 cases of optic nerve tumors, 3 by Hill Griffith, 1 extradural and 2 intradural, and an extradural one by Arthur Benson. In opening the discussion of the former paper, the President, Mr. Berry, expressed his surprise at the possibility of there being such a division as intra- and extradural tumors of the optic nerve, apparently not considering the dura as part of the nerve. Mr. Collins and Herbert Parsons both said the division was a proper one, inasmuch as some growths sprang from the outer layers of the dura itself. Mr. Parsons referred to Byers' paper, which Dr. de Schweinitz has mentioned, and agreed with him and Collins that nearly all the intradural tumors were a form of fibrous growth, which he called "fibromatosis," even though they were reported under such titles as myxomata, gliomyxomata, sarcomata, and myxosarcomata; of the 18 extradural growths that have been reported, nearly all were endotheliomata, as was the case reported in the same volume by Benson.

Dr. Sweet had hoped to give a complete report at this meeting of the case of exophthalmos recently exhibited before the Section, as there was found upon operation an intradural tumor presenting the same appearance as that shown by Dr. de Schweinitz. The tumor began at the optic nerve, 7 mm. back of the globe, and measured 39 mm. long and 25 mm. at its greater curvature. The exact character of the tumor had not as yet been definitely determined.

#### Amblyopia Following Hemorrhage from the Stomach.

Dr. Zentmayer presented a case of amblyopia following hemorrhage from the stomach. The patient was a man, aged thirty-six years. He had suffered from gastric catarrh for six years and this culminated in a severe hemorrhage, estimated by the patient at a pint, followed by a smaller hemorrhage one week later. Almost immediately after the second hemorrhage vision began to fail. Nine weeks later vision in O. D. 6/90; O. S. 6/6. The visual fields are greatly contracted, the lower half of the right field including fixation and almost the entire lower half of the left field being completely gone. Both optic disks are atrophic, the margins and the lamina cribrosa being distinct. The arteries are somewhat contracted.



Dr. Weisenburg had found a history of girdle pains, a weakness of the lower part of the face, with protrusion of the tongue to the left and lessened action of the left palate and ataxia of the left upper limb. He thought that from the multiplicity of the symptoms that it was possible that the patient had cerebrospinal lues, and suggested the Wassermann test.

Dr. Sweet referred to a case of optic atrophy following intestinal hemorrhage that he had exhibited to the Section about ten years ago. The man was a healthy individual, aged fifty-five years, the driver of a dray, who was attacked by vertigo on his way to work. The dizzy and muscular weakness compelled him to return home and go to bed. The same evening he took a large dose of calcined magnesia, and during the night had a large movement of the bowels, which almost filled the two-quart receptacle, and was found the next morning to consist almost entirely of clotted blood. Later in the day there was another bowel movement, almost equal in quantity to the first, but the blood was brighter in color. On the morning of the sixth day vision became blurred, and by evening there was loss of perception of light in the left eye, and only light perception in the right eye in a small area to the right of the fixing point. Ophthalmoscopic examination showed the optic disks pale, the nerve margins slightly hazy, the retinal arteries moderately contracted, the retinal veins full but not tortuous, and the retina edematous. From the lower portion of the disk of the right eye a cilioretinal artery passed toward the fovea.

Examination of the abdomen failed to show any areas of dulness or tenderness to account for the hemorrhages. The blood examination showed hemoglobin, 38 per cent; red corpuscles, 2,088,000, and white 20,900.

The case was under observation for a period of four years. During this time there was no return of vision in the left eye, and only a slight increase in the size of the preserved field in the right eye, which was about 15 degrees wide and extended temporarily from the fixing point to the 40 degree line on the chart.

Although the result of experimental studies points to degeneration of the retinal ganglion cells, secondary to abnormal changes in the blood acting on the vasomotor system, as the cause of the blindness, there would appear to be some other factor in many of the cases. The preservation of a small area in

the field in the right eye of the case mentioned may have been due to an anastomosis of the cilio-retinal blood vessel, although the factors which caused the constriction of the central retinal vessel and its branches would apparently have exerted a similar influence upon this artery.

Dr. S. D. Risley said it was difficult to believe that such profuse hemorrhages from the alimentary tract as reported in the cases referred to by Dr. Zentmayer and Dr. Sweet could have occurred in perfectly healthy persons, and he inquired as to the presence of retinal edema when the cases were first seen. Commenting upon the admirable picture of the fundus shown in Dr. Sweet's case—he said the appearances were those he had come to regard as the classical ophthalmoscopic picture of high blood pressure in the early stages of cardio-vascular disease, resulting from auto-infections or toxemias. The large, dark veins, tortuous to the limits of the ophthalmoscopic fields, were present in the illustration, notwithstanding the fact that the painting was made after the subsidence of the edema present in the acute stage. The appearance of the general fundus was also that so often seen when the infiltration in the fiber layer of the retina had been absorbed. One of the most common sources of such systemic poisoning was the alimentary tract—especially the colon. Dr. Risley thought it would be interesting to ascertain whether these patients had been chronically constipated or had suffered from diarrhea alternating with constipation.

Dr. Langdon said that it seemed impossible that healthy individuals should have sudden, profuse hemorrhages, but that individuals “apparently” healthy have them is an undoubted fact; as an example, the case of a physician, in the early thirties, might be mentioned, who has had two profuse hemorrhages from the digestive tract, almost two years apart, with no unusual symptoms preceding either hemorrhage. He has been studied by numerous internists, including such good observers as Drs. David L. Edsall and D. J. McCarthy, with practically negative findings—the final diagnosis resting between an ulcer of the stomach or duodenum and a relaxed condition of the mucosa with engorgement of the vessels.

Dr. Ziegler stated that some years ago he had presented before the Section a patient with hemorrhages in the eye resulting from dysentery, such being the case he did not see why we could not have a hemorrhage into the nerve itself.

T. B. HOLLOWAY, M. D., Clerk.

**SECTION ON OPHTHALMOLOGY, COLLEGE OF  
PHYSICIANS OF PHILADELPHIA.**

MEETING FEBRUARY 15, 1912.

DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

**Cryptophthalmus: Congenital Ankyloblepharon.**

Dr. Harold G. Goldberg read a paper on "Cryptophthalmus: Congenital Ankyloblepharon," occurring in five members of one family, and extending through four generations. Although the cases were only partial, it was thought proper to classify them among the ankyloblephara rather than epicanthus, because the partial obliteration of the palpebral space was apparently due to a perfect union between the lid margins instead of an overlapping with the production of a fold; the unusual length of the puncta from the bifurcation, and because it was possible to restore a considerable portion of the space by elevating the tissue uniting the lid margins. It did not appear that any of the shortening operations suggested for the correction of epicanthus would prove of value in his case, but instead he contemplated the division of the united lid margins after transtixing them upon a lacrimal probe, the resulting surfaces to be joined by fine sutures. Eleven photographs were exhibited illustrating the clinical aspect of the whole series of cases mentioned in his notes.

**Hereditary Deficiency of the Light Sense.**

Dr. H. M. Langdon referred to a family of five in which the father and one daughter were affected. Each had always been more or less helpless in a dim light, the daughter being especially so. The corrected central vision of the eyes of each was  $6/5$  in a good light; the daughter having a moderately high myopic astigmatism and the father a simple hyperopia. The visual fields of each were normal for form and colors in a good light, with concentric contraction in diminished illumination; the fundi were absolutely healthy. The daughter's light sense, tested on Henry's photometer was O. D.  $3/5$ , O. S.  $2/5$ ; the father's was  $3/5$  in each eye.

Cases of deficient light sense were recognized before the invention of the ophthalmoscope, being known to be transient or persistent, and the latter were either stationary or progressive; with the use of the ophthalmoscope most of them were found to be cases of pigmented retinal degeneration, but certain cases were seen with no fundus changes, and usually hereditary. Many genealogies of such cases have been reported. The most

interesting one was studied by Cunier and continued and completed by Nettleship. This included 2,116 individuals, 135 of whom were affected.

These cases are normal in good illumination, but in a dull light are more or less helpless, and often have to be led at night. It is present at the earliest possible tests and remains unaltered through life.

Dr. Zentmayer asked Dr. Langdon whether a comparison could be drawn between the results found with the Forster apparatus and that of Henry's. He thought that the power of the illumination must be an important one as it was necessary that there should be no variation in this at different times, which might be possible even when a standard candle was being used.

Dr. Sweet thought the illumination from a candle would vary in intensity and believed that a gas flame of known candle power would be more satisfactory.

Dr. Langdon, in reply to Dr. Zentmayer, said that while he was making some comparative studies that would bear on this point, the number of cases so far studied was not sufficient to warrant any definite statement at this time.

### **Corneal Ulcer; *Aspergillus Flavescens*.**

Dr. Zentmayer exhibited the culture and microscopic specimen from a case of *Aspergillus flavescens* infection of the cornea. He said that of the many varieties of the *Aspergillus* the fumigatus was the variety usually found in corneal lesions due to the mold fungi. Other forms are the flavus, glaucus, and niger. The fumigatus is the most virulent. The following case is therefore of particular interest because the ulcer was due to infection by one of the rarer forms. The patient was a man, aged twenty years, who came to Wills Hospital January 31, stating that two days before he had gotten a foreign body in the right eye.

There was a superficial ulcer of the cornea not more than 1.5 mm. in diameter, yellowish in color, with a small black central dot. Connected with this, but at a much deeper level, there was a small irregular area of denser infiltration. The edges were well defined, but with the loup the surrounding cornea tissue was quite hazy. There was neither hypopyon nor vascularity, but a good deal of irritation and lachrymation and moderate pericorneal injection. The culture showed a soft furry white coating on the media, which microscopically was found to be due to

the *Aspergillus flavescens*. The ulcer was curetted, and Ewing's solution and also iodin applied.

According to Fuchs the clinical picture of mold ulcers differs from ordinary ulcus serpens. There is first a central corneal infiltrate which later undergoes superficial disintegration, distinguished by its dull, crumbly surface. About this area a gray or yellowish annular line of demarcation forms which gradually deepens into a gutter and leads to an exfoliation of the inclosed portion of the cornea, which in the meantime has become necrotic. Hypopyon is usually present. According to Leber there is besides this severe type a second milder form characterized by a circular grayish yellow dull patch separated from the uninvaded cornea by a shallow groove, the surrounding cornea being slightly infiltrated. A leash of vessels may lead up to the ulcer from the limbus nearest to it.

Ball states that probably locality has something to do with its frequency, as one country physician near St. Louis met with seven cases in two years.

#### Contusion of the Globe, Vossius Ring-Shaped Opacity of the Lens.

Dr. T. B. Holloway cited the case history of a boy who had been struck on the left eye by a baseball. He was first seen at the University Eye Dispensary in June, 1911, three days after the accident, and twenty-four hours after a lacerated wound through the eyebrow had been sutured at the Surgical Dispensary. At the time of examination the lids of the left eye were moderately swollen and discolored, and the eye somewhat proptosed. There was a moderate ptosis of the left upper lid and an extensive subconjunctival hemorrhage over the external rectus. The left pupil was fixed, horizontally oval, measured 6 x 5 mm.; no notching of the pupillary margin could be noted. Down and out on the iris there was a small hemorrhage. Scattered through the anterior layers of the lens there were numerous punctate opacities, and centrally there could be noted a ring shaped opacity 3 mm. in diameter, which was made up of numerous fine dots. A number of these punctate opacities could also be noted within the annular opacity. The vitreous was slightly cloudy, and at the temporal margin of the disk there was a small hemorrhage. About the macular region there was a distinct edema. There was a notable impairment in upward rotation and slight in outward rotation. Inward rotation was



questionably impaired, and attempts at convergence were painful. The right eye was normal, the vision being 6/5. The vision of the left eye was 1/22. When seen eleven days after the accident the ring-shaped opacity had disappeared, but a few fine opacities could still be noted in the lens.

Early in February the vision of the left eye was 5/20. The internal ophthalmoplegia had improved, but had not entirely disappeared. The extraocular muscles had fully recovered. There were extensive retino-chorioiditic changes throughout the posterior pole. The literature bearing on the subject and the theories of Vossius and Hoeg were referred to.

Dr. Zentmayer said that he felt certain that this was one of the conditions in which no estimate of its frequency could be drawn from the number of reported cases. He himself had seen three or four cases.

He believed that the opacity was not always transient. He recalled having seen it in an eye in which it had been noted at the time of the traumatism several years before. Its significance, however, had not been recognized when first seen, as it was before the publication of Vossius' paper. He thought that probably some alteration took place in the anterior subcapsular cells as the result of the impact of the pupillary margin upon the capsule.

Dr. Sweet recalled a case of ring opacity that he had seen at the Jefferson Hospital clinic a number of years ago. There was a history of a blow on the eye by a blunt object. The opacity disappeared in a few weeks.

Dr. Frederick Krauss agreed with Dr. Zentmayer in believing that these cases were rather more common than the literature of the subject would suggest. He had seen at least three cases, the patients remaining under observation for about six weeks, and then disappearing, owing to lack of subjective discomfort.

Dr. Crampton mentioned the case of a young man who came under his observation, having been struck in the eye with a piece of clay, with resultant hyphema and an annular opacity in the anterior portion of the lens. Through the centre of the opacity a normal fundus could be fairly well seen. The ring-like opacity cleared up almost entirely in from three to four weeks.

In concluding, Dr. Holloway stated that he quite agreed with the opinion expressed by Dr. Zentmayer, that this condition was much more frequent than the number of cases so far on record would lead us to believe. He thought this was emphasized by the fact that of the few cases on record, nine had been

reported from the Giessen Clinic during a period of six years.

Some two years ago another case had been observed at the University Eye Dispensary, but unfortunately the man's notes could not be found after a hurried search of the records. In this patient, as far as could be remembered, the opacity was incomplete, and was seen during the subsiding stage, and the lesion ultimately disappeared between the second and third week.

T. B. HOLLOWAY, Clerk.

### WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF FEBRUARY 5, 1912.

DR. S. LEWIS ZIEGLER, CHAIRMAN.

#### **Non-Operative Treatment of Pterygium.**

Dr. J. Norman Risley in a preliminary clinical report advocated a conservative treatment in pterygia which had proved most beneficial in all cases thus far in which he had applied it. In all there was not only a distinct relief from the distressing symptoms but a decided decrease in the vascularity and a gradual lessening of the area occupied by the pterygium.

The method used was a thorough massage of the entire area occupied by the pterygium with a cotton applicator saturated with a 10% alcohol solution having previously produced a thorough anaesthetization with a 2% cocaine solution. The treatment was continued on alternate days.

#### **A Case of Probable Orbital Periostitis from Frontal Sinusitis.**

Dr. Posey showed a case of circumscribed orbital oedema from frontal sinusitis. The patient came on account of moderate proptosis and a swelling of the lids of the left eye. Examination showed a mass underneath the supra-orbital rim, which was more especially pronounced to the temporal side. The swelling was firm, smooth and apparently external to the periosteum. The eye-ground was normal, save for a dilatation of the retinal veins. There had been a nasal history of ten years standing, and a rhinological examination by Dr. G. B. Wood showed acute inflammation of the frontal and ethmoidal cells. Treatment of the sinuses relieved the orbital condition in some measure.

An exploratory puncture revealing pus under the periosteum, an incision was made, without however, giving exit to more purulent matter. Dr. Posey was of the opinion that the circumscribed swelling of the orbit was an instance of sinus infection being followed by orbital infiltration, which was probably in the nature of a collateral inflammatory oedema.

### **A Shrunken Globe Enveloping an Unusually Large Fragment of Steel.**

Dr. Posey exhibited a shrunken globe, which contained a piece of steel 28 mm. long, 16 mm. in height, and weighed 142 grains. The injury had occurred 5 years previously, and although sight had been obliterated and the greater part of the eye-ball destroyed, the inflammatory symptoms had subsided without treatment and the phthisical stump had carried the foreign body with but slight signs of irritation.

Dr. Sweet stated that he had recently examined a man, 65 years old, with failure of vision in the right eye, the result of retino-choroiditis. The left eye was injured over 40 years ago, and now was a shrunken tender stump, with total corneal degeneration. An X-ray examination showed a piece of steel 3x2 mm., in the interior of the shrunken globe, but the man would not consent to enucleation.

### **Lime Burn of the Eye.**

Dr. W. W. Watson (by invitation) read a paper and related the history of a case recently seen by him. The patient applied at the Howard Hospital in December, 1911, with a lime burn of the left eye, involving both cul-de-sacs. The severity of the burn was marked in the first forty-eight hours, but by rigid applications of hot compresses, atropine, boric acid wash and iodoform ointment, and daily separation of the lids from the globe, deep ulceration was avoided, and in three weeks the patient was discharged from the hospital with entire absence of symblepharon and only a slight haziness of the cornea.

The severity of the conjunctival involvement depends on the amount of lime imbedded, its early removal and neutralization. Adhesions of the lids and globe are prevented by frequent manipulations of the former, by irrigation of the sac with permanganate solution, by introducing a mixture of carbolic acid and olive oil or iodoform ointment, and by the separation of the surfaces with egg-skin as suggested by Coover and Black.

Deep ulcers of the cornea may give rise to staphyloma, corneal fistula, iris adherens, or panophthalmitis. The opacities of the cornea were thought by Dr. Watson to be due to an irregular infiltration of the substantia propria with the lime salts, and not to scar tissue. Though showing little tendency to clear up these opacities may be somewhat relieved by the application of a ten per cent solution of neutral ammonium bitartrate, especially if this be applied early.

Dr. Zentmayer said regarding the prognosis, that Dr. Watson stated that with the separation of the slough the ulcer went on to cicatrization. This was not always the case as frequently there was a deep burn of the sclera adjacent to the corneal lesion which so delays reparation of the corneal tissue that perforation takes place. He had years ago been led into giving a favorable prognosis because of the cleansing of the burned surface in which perforation subsequently occurred; and had once in consultation been obliged to revise the prognosis given by the surgeon in charge, because of oversight of this danger.

Dr. Posey said that he had followed the case reported by Dr. Watson with much interest, and had been surprised that no adhesions had occurred between the lid and the globe. He attributed this to an early fatty degeneration which had occurred in the epithelial cells of the bulbar conjunctiva. He did not believe it was possible to prevent symblepharon by the interposition of a protective material between the lid and the globe. He agreed with Dr. Zentmayer that the prognosis in this class of cases should always be most guarded and desired particularly to caution against giving an opinion by the appearance of the eye during the first 48 hours following the burn, as in most cases violent reaction did not set in until later.

Dr. Chance said that he would not minimize the importance of our efforts to prevent the disastrous effects of lime burns of the cornea, yet he desired to emphasize the necessity of preventing the adhesion of the lids to the eye-ball whenever possible. Such adhesions not only interfere with the movements of the globe, but are painful; and operative measures resorted to later are seldom successful by reason of the absorption of the loose subconjunctival tissues and the consequent contraction of the tarso-bulbar sac. It is his custom to personally attend to the dressing of lime burns and to separate the lids from the globe as widely as possible, and to instruct the patient to rotate the globe. At each dressing he gently but firmly massages the cul-de-sac with ointments on a cotton carrier. It is his belief that numerous cases have been benefited by this procedure and that impending adhesion has been prevented. In certain instances he has used thin lead plates conforming to the conjunctival sac, but he is prejudiced against them as he believes they act as irritating foreign masses and excite rather than arrest exudation whereby the resultant contraction is greater than one can afford.

**The Davis Operation in a Case of Double Ectropion.**

Dr. Ziegler presented a case of marked double ectropion, the result of a nitric acid burn. He had performed on the right eye a Davis plastic at the external canthus of each lid, and an extensive Hotz-Thiersch transplantation on the upper lid of the same eye. He found that Ziegler's galvano-cautery puncture of the mucous surface of the lids of the other eye was sufficient to restore them to their normal position. Rapid dilatation of both tear ducts was also necessary for the relief of an annoying epiphora.

**A Case of Probable Malignant Disease of the Lacrymal Duct.**

Dr. Wm. G. Schlindwein, Erie, Pa. (by invitation) exhibited a case of probable malignant disease of the lacrymal duct. The case had been under treatment for several months without apparent effect.

Dr. Ziegler suggested that an attempt be made to destroy the growth by either the galvano-cautery needle, fulguration, or Ewing's solution, and if these failed a radical operation.

Dr. Posey said that the clinical appearance led him to think that the swelling was probably epitheliomatous in origin, and he believed that the ethmoidal and anterior ethmoidal cells, together with the floor of the orbit were in all likelihood greatly involved. He referred to Thoradin and said that its use had been highly lauded in just such cases. He had had no experience with it however, and would advise the complete extirpation of the growth of operation. He thought that the prognosis for vision in the left eye should be guarded as he deemed it not unlikely that it would not be long before the sight in that eye would be lost in consequence of orbital involvement.

**A Case of Retinitis Proliferans.**

Dr. Zentmayer reported a case of retinitis proliferans in an Italian man 22 years of age. Two years previously he had been under the care of Dr. Posey with bilateral neuro-retinitis with hemorrhages. At that time the vision of the left eye was the poorer. On leaving the hospital vision was very much improved in each eye. Sight had again been failing for about two months, and was now O. D. L. P., and O. S. 6/20. No fundus reflex can be obtained from the right eye because of the dense vitreous opacities, probably hemorrhages. In the left eye the proliferation was for the most part within the retina in the form of broad white lines, but in places the endothelial cells had penetrated into the vitreous and there are forming vitreous sheets with new vessels.



### A Case of Sympathetic Neuritis.

Dr. Zentmayer showed a case of sympathetic neuritis. A man 40 years of age received a clean cut wound entirely within the cornea, with a localized lenticular opacity, the result of an exploding electric lamp thrown at his feet on Hallowe'en. No foreign body was within the eye. The patient was discharged from the hospital at the end of two weeks with a small anterior synechae and a quiet eye. One week later there was a pronounced neuritis in the fellow eye. Vision in this eye was almost normal and the visual field was but slightly contracted. The offending eye was immediately enucleated. Mercurial innuitions and salicylate of soda after the method of Gifford were at once begun and have since been carried out. There is still considerable swelling of the papilla. Vision is normal.

### Aspergillus Ulcer of the Cornea.

A case of aspergillus of the cornea was shown by Dr. Zentmayer. There was a round, yellowish, superficial ulcer with a black central spot, and a second deeper infiltration adjacent to it. Cultures were made by the Assistant Pathologist to the hospital, Dr. Brinkerhoff. The surface of the culture was covered by a woolly whitish mould which under the microscope proved to be the aspergillus flavus.

J. MILTON GRISCOM, M. D., *Secretary.*

## MEETING OF THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

MEETING OF JANUARY 11, 1912

DR. WILLIAM POSTER IN THE CHAIR

### The Influence of Glasses in the Correction of Strabismus.

Dr. D. Forest Harbridge.—In concomitant squint whatever the real determining factor may be, there is ever present, relatively at least, either an insufficiency or excessive action of opposing muscles. A certain number are explainable by the presence of anomalous anatomical conditions, congenital amblyopia, etc.

The two theories commanding the most serious consideration being Donder's and Worth's. So constant is the relationship of esotropia with hyperopia and exotropia with myopia, that it may be considered the rule thus favoring Donder. Worth's theory can be supported in a measure but if correcting lenses be used it seems fusion should follow naturally.

The varieties of convergent squint in which the application of correcting lens operate most favorably, are permanent monocular and periodic. Correcting lenses may be ordered even as early as the 18th month.

*DISCUSSION.* Dr. Posey said that Worth's theory of a fusion centre was purely hypothetical and quite unnecessary, as the physiological phenomena enacted by the true anatomical centres governing the muscles which were concerned with the extra-ocular movements were sufficient to account for the fusion faculty.

He was averse to glassing children under three years of age, on account of the probable danger of the pressure of the spectacles interfering with the development of the bones of the face. This objection might be purely theoretical and he was ready to be convinced of the falsity of his belief by the actual experience of others. He dwelt upon the necessity of differentiating between concomitant and true congenital squint, as in the latter class of cases orthoptic training was useless and operation the only means of straightening the eyes.

Dr. William Zentmayer. Worth's theory of the causation of squint received its confirmation largely from the results secured from his excellent device, the amblyoscope, and yet the principle of its construction and the methods of its use whereby these results are attained are the very ones that would aid in the restoration of parallelism of the visual axes in cases of concomitant squint whether it be caused by incoordination between accommodation and convergence or by failure of development of the fusion centre. The theory of Donder agrees with the facts and in the exceptional cases of convergent squint associated with myopia less than 3% are probably due to other causes enumerated by the essayist together with the fact that in a few of these cases this association was observed in adults and as we know that hyperopia sometimes goes over into myopia, there is no proof but that these cases were originally of the class of convergent squint with hyperopia.

As would be expected from the cause of convergent squint if the glasses correcting the refraction error are placed upon the child as soon as the squint begins to show itself, and this is usually not before the age of 2 years, the visual axes become parallel and remain so as long as the glasses are worn. If there is delay until the deviating eye becomes amblyopic the angle of

the squint is lessened by the glasses but because of poor fixation in the squinting eye parallelism is not fully restored.

In answer to a query why there is at times divergence of the visual axes, with but slight error of refraction, Dr. Posey stated that there were often anatomical peculiarities within the orbit which might account for the divergence and cited a case where an X-ray study of a skull showed encroachment of an unusually wide ethmoid upon both orbits.

Dr. Luther Peter.

### **Tuberculosis of the Conjunctiva and Sclera, Following Removal of a Pigmented Papilloma of Conjunctiva.**

Patient was a girl of Cuban extraction, aged 13 years. Congenital brownish pigmented area in the conjunctiva of O. D., 2 mm. from the outer limbus, triangular in shape with base in. Pigment slightly elevated and moved freely with the conjunctiva.

Removed April 26th, 1911, under cocaine anesthesia. May 2nd wound healed, considerable residual redness and slight thickening of the conjunctiva. May 13th, area of redness increased to about 12 mm. in diameter. Color now salmon. Visual fields and eye grounds entirely normal.

Pathological report "pigmented papilloma." About one month after operation the patch showed an increase in diameter and elevation and contained two foci of ulceration. To the palpating finger the thickened area was decidedly firm and somewhat gritty. After consultation with Dr. Wendell Reber it was decided to remove a section of the diseased area to determine the nature of the process. Drs. Rosenberger and Reddy reported a tuberculosis process. Careful physical examination and search for tubercle bacilli in sputum, urine and feces failed to reveal any foci of disease other than the eye. History of tuberculosis in both maternal grandparents and maternal aunt, otherwise family history negative. On July 6th tuberculin was administered, the initial dose containing 0.01 m.g. of the solid tubercle bacilli. A mild reaction followed. Tuberculin now administered at intervals; in ten days improvement noticeable. Incidentally, one month after the use of the tuberculin, the child developed a well marked case of chorea; otherwise her general health has improved with the local treatment. The appearance now is that of a localized episcleritis of a faint brownish tint fading into a pale pink in the periphery.

Special interest centers in the etiology of the second growth. Possible inoculation from an external source at or after the time

of operation may be called into question, although as all precautions were taken, I think inoculation at the time of the operation may be eliminated. Home surroundings were sanitary and the eye was carefully bandaged for several weeks after operation. It is altogether probable that the contused site of operation furnished a good soil for a growth from an internal focus. It is not likely that so small a nidus of tuberculosis would produce so marked or in fact any general reaction to tuberculin. I believe therefore it is fair to conclude that this lesion was secondary to an old focus of tuberculosis from within.

Dr. Posey said it would be interesting to ascertain if the patient had any negro blood, as the non-resistance of the negro to tuberculosis is a matter of daily clinical evidence. He thought 1 m.g. of tuberculin too high for the initial dose and said that he began with 1/500 m.g., using von Hippel's method.

Neither Dr. Posey nor Dr. Zentmayer had ever seen chorea develop after tuberculosis of the eyes.

Dr. Leighton D. Appleman read a paper on

#### **Dionin as a Factor in Ocular Therapeutics.**

Dr. Posey said that though he had used dionin as a routine measure in much the same manner as Dr. Appleman had advised, he had never as yet been persuaded of the actual value of the drug. Were it as potent to clear opacities as was vaunted, why did slight haze of the cornea not yield at once to its application? In corneal conditions, he had much more confidence in the use of yellow oxide of mercury salve, as an absorbifacient, than in dionin. He did think, however, that dionin was of advantage in obtaining the maximum action of atropine in the treatment of iritis, provided the former drug was administered 15 or 20 minutes before the mydriatic.

Dr. Zentmayer said that on the whole his views coincided with those expressed by Dr. Posey. "I have used dionin routinely since it was first brought to our attention and as the result of this experience I would be led to conclude that with the exception of aiding in the absorption of recent exudates, such as interstitial keratitis and infected corneal ulcerations, and in clearing corneal opacities, I have seen no marked results from its employment. I think that possibly it relieves to a degree the pain of uveal inflammations."

Dr. Harbridge.—"It is a point of interest to know whether the use of dionin in cases of subconjunctival hemorrhage really

does lessen the time of absorption. I question whether or not some of the other mildly irritating drugs would not affect the same results as claimed for diomine."

D. FOREST HARBRIDGE, M. D.,

*Secretary.*

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

MEETING OF DECEMBER 14TH, 1911.

MR. J. E. LAWFORD, PRESIDENT, IN THE CHAIR.

Mr. Eldridge Green showed a new simple test for colour blindness, and Mr. C. D. Marshall regarded it as a great advance in accuracy of testing, as it provided for all the colours which a candidate could be expected to name.

Mr. A. H. Levy showed a case of exudation into the canal of Cloquet, and one of dystrophia adiposo-genitalis with optic atrophy. Mr. W. H. McMullen exhibited a case of nearly complete congenital external ophthalmoplegia. Mr. A. S. Worren showed a punctate crystalloid deposit in both corneae, and Mr. Bishop Harman a case diagnosed as retinitis circinata, but which disappeared in a year. Mr. Grimsdale showed a case of cyst of iris, and Mr. Greeves sixth nerve paralysis in a child after acute poliomyelitis. Mr. McMullen showed an example of retinal disease with massive exudation. Mr. Lister showed a pigmented conjunctival growth, Mr. Hewkley brought forward a case of punctured wound of the cornea, with edges of wound stained with ink. Mr. C. D. Marshall showed, for Mr. Ridley, a scotometer.

Dr. Thomson Henderson read a paper entitled, "The Pathogenesis of Choked Disc." Dr. Thomson Henderson said that the brilliant results obtained by cerebral decompression had conclusively proved that the manifestations of choked disc were the direct expression of the mechanical agency of increased intra-cranial pressure. In choked disc the intra-ocular pressure was normal while the intra-cranial pressure was raised, and therefore to appreciate the essential relationship between cause and effect it was essential for us to possess a clear and definite conception of the physiological association between the normal intra-ocular pressure and the normal intra-cranial pressure. He had experimentally demonstrated that under physiological conditions the intra-ocular and intra-cranial pressures were simi-



lar in nature and in level. The condition of venous engorgement and of swelling of the disc which together completed the ophthalmoscopic picture of choked disc were both the result of the sudden break at the level of the lamina cribrosa of the physiological equilibrium of pressure which normally existed at this point. When the intra-cranial pressure was raised, the cerebral venous pressure mounted to the same level, and therefore the pressure in the neural portion of the retinal vein likewise rose, hence, to complete the retinal circulation, the pressure in the intra-ocular portion had to rise *pari passu*, thereby producing the retinal venous engorgement. As fluids tended to lie at the lowest hydrostatic level, and as the hydrostatic pressure behind the lamina cribrosa was greater than in front, fluids passed forward into the now lower hydrostatic level of the eye, and so caused swelling of the disc. The arching forward of the lamina cribrosa, and the so-called Hydrops Vaginae represented a yielding of those structures to the increased hydrostatic pressure they were called upon to support. As the brain acted as a viscous and not a fluid mass, and further as the rigidity of the Falx and Tentorium tended to hinder general diffusion of hydrostatic pressure, the pressure in one cerebral hemisphere and corresponding optic nerve might rise above that in the other, thereby accounting for the ipsilateral feature of choked disc. The paper was discussed by Mr. Herbert Parsons, who considered that on logical grounds Mr. Henderson's contention did not hold good. He believed that pressure was not a question of volume in the sense in which Dr. Henderson meant it. If the intra-ocular pressure were identical, physically, with intra-cranial pressure, then admittedly the intra-ocular pressure would be equal to the intra-ocular venous pressure. For the intra-ocular pressure to be always equal to intra-ocular venous pressure would mean absolute rigidity of the corneal sclera. That was where the fallacy lay. There was evidence that the sclera was not quite rigid. He did not believe a purely physical explanation could be given either of glaucoma or of increased intra-cranial pressure; physiological factors must be taken into account. Mr. J. L. Patton regarded Dr. Henderson's paper as a return to the crude original ideas published in the '60s, only modified by an application to the explanation of venous congestion published by Dr. Leonard Hill in 1896. Venous pressure alone did not suffice to account for the phenomenon of choked discs, and in this connection he mentioned the example

of thrombosis of the central vein. He asked the author in what proportion of the cases of optic neuritis which he had examined he had seen the arching forward of the lamina cribrosa. Out of sixty eyes in which there was optic neuritis, in only one was there that arching forward of the posterior fibres of the lamina cribrosa. Dr. Gordon Holmes thought it remarkable that when such views as in this paper were put before a scientific society, the facts also were not given. He proceeded to discuss the question of the disassociation between intra-optical and intra-cranial pressure, and regretted that the question of ipso-laterality had not been considered more quietly. Dr. Henderson replied that Schencks had experimentally produced ipso-laterality. Foulkes had described the corneal sclera as rigid.

Dr. Adolph Bronner read a paper entitled "Notes on Three Cases of Ulcer of the Cornea Combined with Painful Spasm of the Sphincter Pupillae." In the first case the severe pain persisted, in spite of all ordinary methods of treatment, from October 9th to November 21st, when an iridectomy was performed, which gave immediate relief, and the ulcer healed in four days. In the second case the symptoms persisted from June until August, when an iridectomy again gave immediate relief. The third case persisted for three months and was at once cured by an iridectomy. The peculiarity of these cases was that the ulcers were superficial, often traumatic, not infiltrated, and did not heal in spite of the usual methods of treatment, for several weeks or months. The pain and photophobia were also more severe and more intermittent than usual, and at once ceased after iridectomy. The chief peculiarity, however, was that that pupil did not dilate with atropine, and that often the pupil of the other eye did not act as readily as usual. The fact that the iris was not infiltrated, that there was no lymph on the anterior capsule, and that the pupil dilated after iridectomy, proved that there had been no severe iritis. Probably the unusual symptoms were due to neuritis of the nerve endings in the cornea, which caused reflex spasm of the constrictor pupillae muscle, and this, in turn, possibly prevented the ulcer from healing. The president said the treatment seemed rather like a return to the methods of former days. He recounted the case of a gentleman who had been under the care of several ophthalmic surgeons for ulcer, but without success until the patient went to the late Mr. Gunn, who did an iridectomy, and the patient promptly got well. Mr. Richardson Cross suggested the

use of the cautery and tapping the eye, before making the radical excision.

Dr. Harrison Butler said that in almost every serious case of ulcer which he did not cure by other means, he obtained a favourable result by a Sæmisch section. Dr. Bronner replied that he used the cautery in one case, but it did no good. Of course he did not suggest that iridectomy should be done in every case of corneal ulcer. The cases he had related were not septic ones.

C. D. MARSHALL.

### THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

An ordinary meeting was held at the Medical Society's rooms on Thursday, 25th of January, under the presidency of Mr. J. B. Lawford. It was announced that the society had accepted the invitation of its Dublin members to hold the May meeting on the 11th of that month in Dublin.

Mr. A. C. Roper showed a case of melanotic sarcoma of the conjunctiva with secondary nodules in the skin. There was no trace of anything in the fundus. He was advised to radically remove the whole of the orbital contents. The skin nodules were found not to be malignant. Mr. G. Coats showed (1) concretions (Drusen) of the papilla; (2) corpora amylacea in the retina. Dr. Farquhar Buzzard said the appearance was different from corpora amylacea in nerve tissue generally, as in this case there was a definite capsule. Mr. Rayner Batten showed a fixation fork, designed for the insertion of sutures in the sclerotic in advancement operations. By its aid one could pick up exactly the amount required, and there was no danger of the needle being pushed in too deeply. He also showed a case of central (macular) coloboma of the choroid of unusual form, symmetrical in the two eyes. Mr. L. Pisani showed a case, which was originally exhibited in 1880, with peculiar bodies on the iris after needling for lamellar cataract. Mr. Mayou thought the bodies might be due to implantation of the cells of the capsule on the iris. Mr. Greeves showed (1) a case of metastatic septic choroidoretinitis, and (2) a case of quinine amblyopia. Mr. Coats showed a case of tubercle of the choroid in a cat. Mr. Mayou related a case in a cat also, which bore out Mr. Coats' remark. In that case, however, there was a small nodule in the breast. He thought it was not likely for primary tubercle to start in a choroid without there being a lesion elsewhere in

the body. Mr. Wray showed a case of glaucoma, a case of keratitis disciformis, and one of exostosis of the roof of the orbit. Mr. R. R. James showed a case of hyaline degeneration of the disc, and Mr. Horsford a case of mal development of the eyes in a child.

Mr. A. A. Bradburne read a paper entitled "Hereditary Ophthalmoplegia in Five Generations." In this family there was a condition of ptosis accompanied by an almost complete loss of the ocular movements, which had been present in five generations. After enumerating the numbers affected and briefly describing the condition in each, he proceeded to consider the various types of this rare affection. He classed anomalies of congenital ocular immobility into three divisions: First and most common, those in which only ptosis was present. Secondly, when this was combined with epicanthus. Thirdly, a type in which ptosis might or might not be present, but in which the ocular movements were very defective or altogether wanting. This latter type embraced three sub-divisions: (a) ptosis associated with defect of the superior rectus; (b) more extensive involvement of the eye muscles with or without ptosis, the condition being due to some nerve lesion; (c) this type included the same kind of matters, but the condition was due to entire absence of, or very defective development of the muscles. His own case came under this category. The author pointed out that in two of the younger members a certain return of the movements had occurred, and suggested how this might have come about. He showed that in the shark the ocular muscles arose from three centres; one for the superior obliques, one for the abductors, and the remaining four muscles arose in pairs from a third. These paired muscles were the superior with the internal rectus and the inferior rectus with the inferior oblique. In all the members of this family the superior obliques were probably present, and hence if any further movements became possible, one would expect their appearance to follow somewhat the lines as seen in the shark. In one of the members of the family it had done so, as one eye was able to move from a point straight in front outwards, thus seemingly pointing to a development of the second centre. But that did not follow in another case in which both eyes possessed full lateral motion. By analogy one would expect to find development of motion in the upward direction, but such was not present.

Hence the human development was from a different centre to that of the shark, or another factor was present in the case. As the patient had ptosis, motion in an upward direction would not be of much practical use, hence it seemed as if the visual act had had something to do with the "evolution." This seemed probable as, in the same case, to prevent diplopia, the visual act had produced a convergent squint. Finally, he asked if the argument could be logically reversed and the condition of muscle palsy attributed to a long-continued non-use of the eyes in some ancestor afflicted with ptosis. The paper was discussed by Mr. Bishop Harman, who pointed out that in the sun fish each of the recti, except the rectus externus, sent off a separate slip which went to the circular fold round the eye, and was capable of retracting a fold from the cornea, and one saw the original development of the levator. The idea of an arrest of development running through a family was easier of acceptance than the more difficult theory which the author had brought forward. Mr. Beaumont (Bath) suggested the condition might not be so much a pathological one as a tendency in this family to a throw-back to a primæval condition antecedent to the development of the oculo-motor muscles.

Mr. George Coats read a paper entitled "On Crystal-like Bodies of Radiate Structure in the Lens." He said they were found in a hypermature cataract in a woman aged 69, and had not been seen clinically. In the lens nucleus, which had undergone but little degeneration, round and oval bodies, measuring from 0.035 to 0.160 mm. were found. They had a refractile crystalloids appearance, and were marked by numerous fine lines converging towards an axial linear streak or spot. There were frequently a tendency to cleavage along these lines, so that the body was split up into a number of radially disposed pyramidal sectors, not unlike the pyramids of the kidney. In the larger crystals there was a central tuberculated mass of mineral hardness, the structure resembling that of a rubber-cored golf ball. Usually the adjacent lens fibres were arranged round the crystals to form a kind of capsule. Only two similar observations were on record, in one of which the bodies were seen clinically as globular beads with a silky or pearly sheen. In all these cases the lens was cataractous; in two the opacity was senile, in one lamellar, the patient being a child of six. In all the crystals were confined to the more central layers of the lens.



As to the nature of the crystals, the scarcity of material made it impossible to carry out extensive histo-chemical researches, but they showed considerable structural resemblance to leucin, a diagnosis which was sufficiently probable, since the crystals occurred in cataractous lenses, and leucin is a product of proteid disintegration. They occurred, however, in the least degenerate part of the lens. Hydrochloric acid produced no effervescence. Dr. W. H. Willcox had kindly examined the specimens, and reported that the appearance of the bodies was "similar to that which leucin takes when it has been subjected to dehydrating processes."

The president asked whether Mr. Coats found these bodies in the extracted lens, i. e., whether the eye had been removed. Mr. Burdon-Cooper (Bath) asked if Mr. Coats had ever found tyrosin in the lens. He had himself discovered that substance in the aqueous after needling for lamellar cataract. Professor Halliburton, of King's College, confirmed that it was tyrosin. In wondering how tyrosin could have got there it occurred to him that possibly it was the result of hydrolysis of the lens, and he therefore sent for a pig's eye at the butchers, and found the lens yielded almost pure tyrosin. The microscope gave the most delicate test for it. Tyrosin was fairly soluble in sulphuric acid. He had found the substance in the lens in all cases of cataract, and he was strongly of opinion that the change which took place in senile cataract was a hydrolysis of the lens. Mr. Coats, in reply, said there was nothing in his sections which resembled tyrosin.

C. D. MARSHALL.

## NEWS ITEMS.

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. W. H. Wilder of Chicago has sailed for Europe.

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Dr. W. Franklin Coleman has resumed practice in Chicago after an extended vacation.

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A new monthly magazine has appeared at the University Medical College, Kansas City, Mo. Dr. Flavel B. Tiffany is the editor.

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Dr. George Washington Maser of Parsons, Kan., died at his home March 26th, aged 56. Dr. Maser was oculist to the Kansas & Texas Railroad.

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A very interesting symposium on the conservation of vision appeared in the April number of the Illinois Medical Journal.

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Dr. Frank L. Ives of New York City died March 22, aged 63. Dr. Ives was a member of the staff of the New York Eye and Ear Infirmary for many years.

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Dr. Rose Beere, examiner of children in the public institutions of Denver, has found 102 cases of trachoma in the State Home for Dependent Children.

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Dr. Albert A. Cannaday has located in Roanoke, Va., where he will devote his time to special practice in diseases of the eye, ear, nose and throat.

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Dr. Casey A. Wood of Chicago is in Palo Alto, Cal., where he is carrying on his investigation of the eyes of birds at the Leland Stanford University.

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Dr. Burton Chance has been appointed ophthalmic surgeon and Dr. Archibald Williams consulting ophthalmic surgeon to the Pennsylvania Railway at Philadelphia.

Dr. Christian R. Holmes of Cincinnati, O., has purchased controlling interest in the *Lancet-Clinic*, which will henceforth be the official organ of the Cincinnati Medical Civic Association.

Dr. Albert C. Snell recently gave a public lecture on the "Care of the Eyes" at the Mechanics Institute, Rochester, N. Y. This lecture was one of a series given as an educational movement.

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The state board of health of Minnesota is considering the appointment of an oculist to co-operate with the federal department in the care of trachoma cases on the White Earth Indian reservation.

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Dr. Thomas A. Woodruff of Chicago has been appointed to take charge of the Illinois state exhibit on prevention of blindness and conservation of vision at the International Congress on Hygiene and Demography, to be held in Washington, D. C., in September, 1912.

At the annual meeting of the Houghton County, Michigan, Medical Society the following officers were elected: Dr. W. H. Dodge, Hancock, Mich., president; Dr. P. D. MacNaughton, Calumet, Mich., vice-president; Dr. Robt. B. Harkness, Haughton, Mich., secretary and treasurer.

Dr. John Ray Newcomb of Indianapolis was married on April 11th to Miss Mary L. Masters of Jacksonville, Ill. Dr. and Mrs. Newcomb are making a trip to the Isthmus of Panama and intermediate points in Costa Rica and Guatamala and will return to Indianapolis about May 15th.

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The Oxford Ophthalmological Congress will assemble at Keble College, Oxford, on Wednesday, July 17th next, and the meeting will be held on Thursday, the 18th, and Friday, the 19th of July. Members are reminded that cases, specimens, etc., are needed, and will be welcomed. They are indeed essential for the success of the meeting. If there be any demonstration that you are willing to give, any operation that you care to show, or any exhibition whatever that you are desirous of making, please notify as soon as possible, the Hon. Secretary, Mr. Sydney Stephenson, 33 Welbeck street, London, W.

Charles Martin Steele, M. D., of Reno, Nevada; oculist and aurist to the Southern Pacific, Oregon Short Line and Nevada Central railroads, died January 6th, after an operation for appendicitis, aged 48.

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Dr. I. J. Murphy, medical supervisor of the Indian department, found at the River Point boarding school in Minnesota that 74 per cent of the pupils suffered from trachoma and 21 per cent had corneal scars. At Twin Lake there were thirteen trachoma cases in a population of 65, and at Elbow Lake there were thirteen cases of trachoma also in a total of 54 inhabitants. Among the 76 persons at the Wild Rice River settlement 24 had trachoma.

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Dr. Willis O. Nance, former secretary of the Chicago Ophthalmological Society, was recently re-elected as alderman to the Chicago council. Dr. Nance has introduced several progressive measures into the council, one providing for the reporting of all cases of sore eyes in babies to the health department. Other ordinances which he introduced and which were passed, were to abolish roller towels in public lavatories and to control the sale of cocaine and other habit-forming drugs.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Pol.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.) C. H. Francis (Pol.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wipperfurth (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipperfurth (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipperfurth (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (F.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) J. B. Loring (Inf.) Wm. E. Gamble (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findley (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findley (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findley (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findley (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findley (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)
3 P.M.	W. Allen Barr (C.C.S.) Wm. E. Gamble (P.&S.)	H. H. Brown (Ills. Med.)	J. E. Harner (P.&S.) W. Allen Barr (C.C.S.) Wm. E. Gamble (P.&S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pussey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honor Streets.	Pol.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P.G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1418 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	



# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

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No. 5, New Series

## ORIGINAL ARTICLES.

### A BROCHURE ON TRACHOMA.

BY DANIEL W. WHITE, M. D., U. S. EYE AND TRACHOMA EXPERT  
AT LARGE, AND CHARLES E. TREIBLY, M. D., FIRST LIEUTENANT,  
M. R. C., U. S. ARMY.

ILLUSTRATED.

(Original Drawings by Daniel W. White from Personal Cases.)

In presenting the following article to the profession in general and to the ophthalmologist in particular, it is not the desire of the writers to go into the minutia of the pathology and bacteriology of Trachoma, but to submit our personal experience amongst over 100,000 Indians of the United States. We desire also to state that the points brought forth during the progress of the article comes from an exhaustive study of statistical facts. This we are able to do because of the fact that our subjects are at all times under government control and not taken from a clinic where they are seen for a short time only and drift out of sight.

In presenting Trachoma amongst the members of the Indian race, is no new subjective condition, as the Indian has been the unfortunate sufferer from this slow and insidious disease for years, but it remained for Dr. White, through his investigation and researches, to bring this serious condition before the United States government. Prior to this time it was commonly known as "sore eyes" amongst the Indians, and the true cause of blindness was not realized.

A conservative estimate of the number of known cases of Trachoma amongst the Indians of Oklahoma could safely be placed at 60,000 to 70,000, or about 60 to 70% of the entire population (Indian) of the state. It can also be safely estimated that from 60 to 80% of the Indian population of the United States have Trachoma. This condition is one of the most serious propo-

sitions which the Department of the Interior has to deal with at the present time. The disease is quarantinable at our sea-ports today, and any immigrant with Trachoma is immediately held for deportation. The Department has shown great activity in handling this condition amongst the Indians during the past year, especially in Oklahoma, but lack of funds has prohibited the employment of any more experts in combating this treacherous disease.

Trachoma is a contagious and infectious form of chronic conjunctivitis affecting the eyelids; characterized by follicular formation of pin-point, sago-like bodies of variable proportions of one or both lids, which may or may not be accompanied by hypertrophy, attacking later the eyeball itself, causing great permanent impairment of vision, and which, in the majority of cases, if allowed to proceed without treatment may result in either partial or total blindness. After the disease of the lids has progressed for some time, deformities, such as Entropion, Ectropion, etc., very often appear. It is also known as mulberry eyelids, eye itch, granular lids (not granulated lids), or more properly called Granular Conjunctivitis. The disease has by some authors been termed Ophthalmalacia Egyptica. The disease may continue with symptoms of more or less degree for many years, the end being finally determined by the formation of cicatricial tissue which Nature in her kind beneficence has brought about.

Trachoma is found in all countries. It is very prevalent in Egypt, Palestine and Russia, and has caused great alarm in China and Japan. Palestine has often been by some authors termed the country of "one eyed" people. During the Turko-Russian War in 1887 there was an epidemic of blindness amongst the troops due to Trachoma. It is very prevalent in some parts of the United States, particularly in the West and Southwest—Illinois, Missouri, Oklahoma, Arkansas and Texas. In the state of Illinois the town of Cairo has ofttimes been called "Little Egypt," and it is said that the train conductors in calling this station have called "Trachoma," due to the chronicity of the disease in that locality and the inability of the authorities to clear it up. In one of the Italian sections of New York City the condition has existed for years, and yet our modern methods of treatment have proved inadequate.

Climate has little or no effect upon the prevalence of this disease. Altitude and latitude have little or no effect. In a

recent paper we mentioned that Trachoma was found in altitudes as high as 8,000 feet. It is Doctor White's desire to fully exonerate Dr. De Schweinitz in his Textbook on Diseases of the Eye, where he mentions that Trachoma is not found in altitudes of over 1,500 feet, as the statement was the authority of one of Dr. De Schweinitz' collaborators and not from himself. This belief is still held by many able authorities and may be their experience.

Trachoma is more prevalent in windy and dusty localities (Oklahoma, Arkansas, Texas, Arizona, New Mexico) due to the production of Conjunctival irritation. It is found in all races, the negro not being immune, as some authorities believe. We believe the Indian would not be more susceptible to Trachoma if their lives were lived under the proper sanitary conditions, and if they had more nourishing and stimulating food. For instance, during December, 1910, there were over 600 examinations made of eyes of the pupils at the United States Indian School at Carlisle, Pennsylvania. Of this number, there were 414 cases free of Trachoma, 37 suspicious cases, and 149 known cases of Trachoma. Of those pupils remaining at the school continuously until December, 1911, and who did not have Trachoma in 1910, only nine contracted the disease.

This disease is found in all ages. The youngest case found was in a four month old baby. The young are more susceptible than the adult. Very young children are extremely susceptible. It is about as prevalent in the male as in the female. It has been our experience males under ten are more susceptible than females. Females over ten have shown more susceptibility than males—hygienic measures of sex may account for this. This has been found to be the case in all Indian schools.

### **Bacteriology and Pathology.**

Trachoma is a specific infective disease of the subepithelial tissue of the conjunctiva, characterized by infiltration of Lymphoid follicles with necrose. (White and Treibly of this article cannot agree in this statement in all cases—*i. e.*, necrosis takes place—clinically, there are many cases which do not appear to go through this expected stage.) In later stages of the disease, there is a formation of fibrous tissue of variable amount; it may be so extensive as to cause obliteration of the conjunctival sac. By inoculation of one patient with the discharge from the other, the disease is directly contagious, different clinical forms which are present are but different degrees of the same disease. (White

and Treibly have found on clinical examination a new follicular formation on top of an old Trachoma—that is, cicatricial tissue. Authorities claim Trachoma may be due to a Coccus, or to a Bacillus or to ultra microscopic organisms. Recently minute ovoid bodies smaller than any known Cocci have been found by the use of Giemsa stain in the epithelial cells. Those bodies occur in a mass near the nucleus in form of a clear capsule separated from the nucleus by a clear space. The area containing cells enlarge, ultimately bursting, so that the granules are discharged. Those bodies have not been cultivated or reproduced. Those bodies may be thickenings of the Chromatic filaments in the cytoplasm—caused by degeneration of the cell—pyknosis or hyperchromatosis. These cells also have been found in epithelial cells of the normal urinary tract and conjunctiva. The first stage of the disease is in tarsal conjunctiva, in form of small, circular, pale grey areas, due to follicles imbedded in fibrous tissue. Those later enlarge and form elevations on the surface, which, like follicles in fornix, may rupture. The disease begins in either upper or lower fornix, appears in the form of gelatinous swellings resembling sago or frog spawn in later development. In association with follicles, there is always hyperemia of blood vessels and papillary formation, though the amount of hypertrophy varies—when excessive is called papillary Trachoma—where on the other hand the follicular formation is more striking, clinically we class it as follicular Trachoma. In later stages, the subepithelial tissue becomes replaced by newly formed tissue, which is seen as irregular white streaks on inner surface of lids. This is the cicatricial stage. The band of tissue forming along line of sulcus subtarsalis, is termed Arlts Streak, and the contraction caused by it is the commonest form of entropion. You may have infiltrate around the follicle, undergo hyaline degeneration which gives a peculiar wax-like appearance in the conjunctiva, called Stelwags Brawny Edema. In severe cases you find Pannus of the cornea, the upper half is most frequently involved (White reports Pannus in few cases beginning at temporal side.) A line of demarcation separates the normal cornea—though whole cornea may be involved. (White relates this (i. e. the whole cornea) is very frequent in Indians over forty years of age with old Trachoma.) The blood vessels of Pannus are derived from those of the Conjunctiva, and are located in the superficial area of the Cornea. Slight vascularity is desig-

nated—Pannus Tenuis, where vascularity is marked Pannus Vasculous and where a permanent opacity is left and few vessels—Pannus Succus. (This form is found in 80 per cent. old Indians after they have Pannus for over ten years—very often you cannot see vessels, only a faint white cloud.—(White.)

The amount of discharge varies. It is always increased by a mixed infection, especially gonococcus. Mucopurulent discharge may be present in Trachoma, but is not essential, you may find a mucoid secretion. (It has been my experience in over 90 per cent. of true Trachoma cases not to detect discharge—on some occasions have found a ropy discharge in transitional folds of eye lid. I believe the discharge found in the Indian is almost always due to a mixed infection.—White.)



Fig. 1—An Old Trachoma Case in All Stages.

- a—Follicles with slight contraction of surrounding tissue.
- g—Atrophied granulation tissue
- c—The numerous atrophied islands
- d—A connective tissue Pannus.

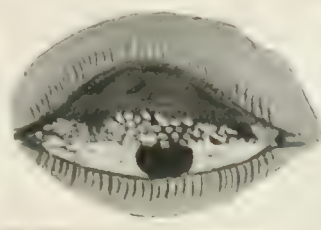


Fig. 2—Trachoma Case. Eversion of the Upper Lid

When exacerbations occur, there is a mixed infection pyogenic organism found in the discharge. Trachoma lowers vitality of tissue and, no doubt, when follicle ruptures provides means of organism's entry. In early stage of Trachoma, Epithelium shows little change, but when any appears, it becomes infiltrated with leukocytes, these leukocytes, unlike the ones in deeper tissue, are principally of the polynuclear variety, no doubt, their presence is due to pyogenic organism growing in the epithelium, since without infection, they are hard to find. As the disease advances, the epithelial cells undergo increased mucoid change. The epithelium on top of the follicles at times becomes almost entirely destroyed. They give rise (the cells) to new pseudo glands in the crypts between the follicles and the



folds produced by hypertrophy of the subepithelial tissue. When the lachrymation is decreased in long standing Trachoma, may have Keratinization of the Epithelium taking place. This is more likely to occur on prominences produced by new fibrous tissue. The subepithelial tissue changes are mainly two—first, Formation of Follicles; second, Infiltration.

The follicular formation and infiltration always occur together, but one may be in excess of the other, producing different clinical conditions. The follicles of Trachoma differ considerably from health follicles found in lymphatic glands and those met in follicular conjunctivitis, found usually in lymphoid layers, but may be more deeply seated—their structure varies with their age. In a newly infected Trachoma follicle, there is a single layer of somewhat elongated, flattened cells, which appear entheloid in origin—their continuity is often broken up, more than of follicles due to other forms of conjunctivitis. With those cells there are other cells supported by an ill defined reticulum; the outermost cells in follicles are chiefly darkly staining lymphocytes, toward the center are slightly larger cells, epithelioid in character, more than likely derived from the outer ones. Their staining, suggesting, degenerating changes taking place in them due to action of the toxin. Scattered in the central layer are also a few large endothelial cells, chiefly of the Phagocytic variety. Well formed plasma cells are rarely found with the Trachoma follicles due to disintegration by the toxin.

*An Older Trachoma Follicle* consists of capsule of connective tissue plus infiltrated leukocytes, especially if the disease is spreading. Very seldom any regular endothelium lining to the capsule can be made out. Connective tissue cells are mostly well formed, many showing signs of proliferation. Numerous mast cells are present. The amount in follicles varies with its age—in old degenerated follicles, it is conspicuous, and consists of delicate fibres—which proceeds from true connective tissue cells. Numerous blood vessels are found in the peripheral of the Stroma of older follicles; they spread inward toward the centre as the follicle becomes organized. Externally, cells found in older follicles consist of darkly staining lymphocytes, internally, is found larger epithelioid cells more faintly stained. The central endothelial cells, however, have large oval nuclei, and a quantity of Cystoplasm, which often contains fragments of necrotic cells. Plasma cells are absent from the follicle, but may be found in the outer zone, or neighborhood of vessels.

The *Trachoma Follicle* may finally become extruded, or undergo organization and absorption.

*Extrusion of the Follicle*—First—As the result of *Operation*. Second—From contraction of surrounding tissue. In section of a follicle, shortly after expression, the thick fibrous wall of the follicle encloses a space which communicates with the surface of the conjunctiva. The wall of the follicle and the epithelium in the neighborhood of the *Rupture* are infiltrated with polynuclear leukocytes, (Spider Cells), no doubt owing to the presence of septic organisms. Within the follicle are a number of blood Corpuscles, mononuclear leukocytes, plasma

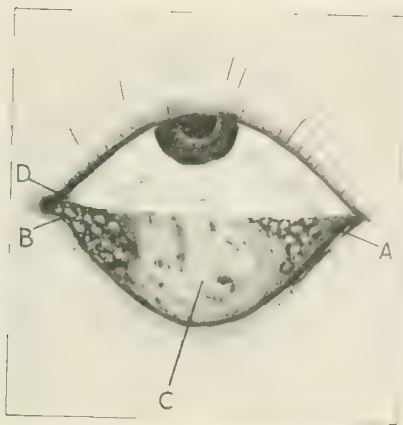


Fig. 3—Trachoma (mild case)  
Before Operation.  
a—Slight hypertrophy.  
b—Follicles at conthi.  
c—Vessels distinctly visible.  
d—Hypertrophy at margin of upper lid.

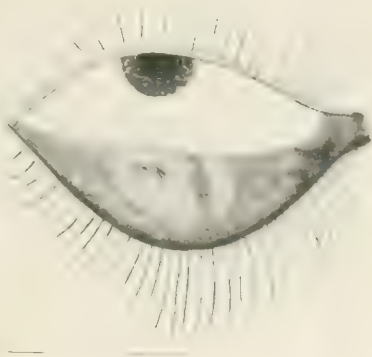


Fig. 4.  
After Expression for Trachoma  
by Knapp's Forceps

cells, etc. Later fine bands of connective tissue stretch from one follicle to the other, evidently derived from proliferation of the connective tissue cells of which they are composed. None of the original follicle remains, it either having been thrown off or destroyed by the polynuclear leukocytes. Second—As the result of the contraction of the newly formed fibrous tissue around a follicle, the contents is compressed and made to protrude.

Between the follicles and the epithelium is a thin layer of plasma cells which do not develop into fibrous tissue, the epithelium overlaying the follicle from the friction of the lids and

the pressure produced by its protrusion becomes gradually thinned and finally the follicle ruptures, and its contents being partly extruded and what remains becomes septic and is removed by invading polynuclear leukocytes.

*Absorption and Organization*—A large number of lymphocytes in the follicles find their way into the blood stream and lymphatics, since small venous radicals in the neighborhood of the follicles are often found packed in those cells. When pyogenic infection of whole conjunctiva takes place, the polymorphonuclear leukocytes are first found chiefly in the walls of the follicles and do not readily invade it. Later, when its cells degenerate, the polynuclear cells enter the follicle and either removes its contents by phagocytosis, or the cavity ruptures through the surface, and discharges its contents. *The effect of Copper Sulphate is no doubt due to the polymorphonuclear leukocytosis attacking the disease, not only in the follicle, but also in the infiltration.* The infiltration, like the follicle, is due to the disease setting up a chronic inflammation in the tissue. It is not limited to the superficial layers, but also extends to the deep layers.

*Other forms of Chronic Conjunctivitis is limited to the Superficial layers beneath the Epithelium.* ("This beefsteak appearing Chronic Conjunctivitis which is found very often in the Indian is mis-diagnosed by the inexperienced in Trachoma, Chronic Conjunctivitis. I recall three young men at the Carlisle Indian School whom I examined in January, 1912 (R. H., J. S., J. W.)—present this deep conjunctivitis or properly diagnosed, Trachoma. The vision in two of those cases is practically lost, I am sorry to say. White From Eye Examination, Carlisle Indian School, Pennsylvania.") Beneath the epithelium and in newly formed papillas are masses of plasma cells. A number are found in the discharge. In the superficial layer of the plasma cells, a number of new blood vessels form, the endothelial cells are undergoing active proliferation, somewhat deeper infiltration consists of lymphocytes, and still deeper in long standing cases, is dense fibrous tissue which tends to grow up into more superficial parts around the follicles. Here we have many mast cells. The upper palpebral conjunctiva, in long standing Trachoma, is sometimes converted into pale gelatinous looking tissue ("I find this to be a very frequent clinical appearance.—White") or called Brawny Edema (Stelwag) and is usually associated with some scarring and is one of the end

results. ("Patients R. H., age 21, J. S., age 26, and J. W., age 19. Carlisle Indian School Eye Examination, Dec., 1911.—White.") The subepithelial layer consists entirely of infiltration much separated by bands of fibrous tissue; practically no follicular formation is left. The infiltration consist of a few mononuclear cells and a large number of plasma cells in all stages of degeneration. The cell body being broken up and converted into hyaline material, this may go on to calcareous change ("not frequent in my experience. Had a number of such cases in Arizona and New Mexico—White.") There is no doubt that change in Limbus and subsequent Pannus are due

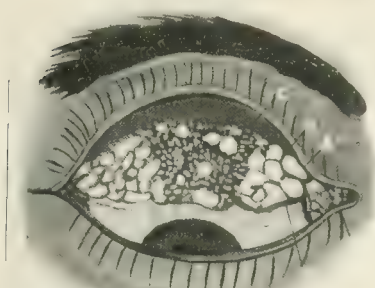


Fig. 5.  
Conjunctiva of Upper Lid in  
Chronic Trachoma.

- a—Note size and shape of follicles
- b—Hypertrophy.
- c—Note size of follicle
- d—Note irregular outline of tarsal fold.
- e—Follicles at C.

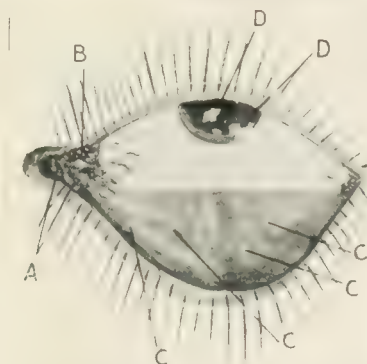


Fig. 6.  
Trachoma Five Years Standing  
—Follicles at caruncle  
—Follicles at fornix.  
—Scar tissue on lid.  
—Opacities of cornea.

to true infection of that region with Trachoma since follicles are shown in them which shows typical necrosis. The infiltration is first superficial to Bowman's membrane, but finally this is destroyed and then it invades the substantia propria. Small ulcers are very often present and morphonuclear leukocytes are then present.

The direct cause of Trachoma is supposed to be a germ but there is a great diversity of opinion among the authorities as to whether it is a bacillus or a parasite. Of recent date the Trachoma bodies of Prozawek have been found in Trachoma. In most parts of the West these bodies are considered one of

the most useful aids in diagnosis. Dr. Casey Wood of Chicago, we believe, depends to a great extent on them for their diagnosis, when in doubt. In the East such authority as Dr. Wootton, of New York, and others do not count them as such a valuable aid in the diagnosis. The Trachoma body is found in other conjunctival infections. Dr. Hidyoe Noguchi of the Rockefeller Institute, and Dr. Martin Cohen of New York, state that they have found in microscopic study the Trachoma body associated with gonococcal and non-gonococcal infections, acute and chronic conjunctivitis, in normal conjunctiva and vernal catarrh. Dr. A. Martin of Arizona, and Dr. D. W. White found the Trachoma body in conjunctival infections. The Kochs-Weeks Bacilli was also very often present. (Year 1908 U. S. Eye Hospital, Phoenix, Ariz.) The body is found more frequently in the follicular type not associated with hypertrophy. Noguchi also reports 45 cases from Ellis Island under the supervision of Dr. Guthrie, Dr. Dunn and others and out of the 45 cases, 5 showed positive findings of Trachoma body.

Thus far we have been unable to find any literature on the subject from the Army and Navy physicians, and we believe that Doctor Treibly of this article, First Lieutenant in the Medical Reserve Corps, U. S. A., is the first person to take up the subject of Trachoma in a non-official way. Dr. Williams, of New York City Eye Department, under the supervision of Dr. Wootton, gave the following classification of Hemophilic Bacilli at the recent January meeting of the Pathological Section of the New York Academy of Medicine:

	Tract				Other	
	Eye	Ear	Resp.	Mening.	G. U.	Places
Bacillus Influenza . . . . .	x	x	x	x	x	x
Bacillus of Mueller . . . . .	x					
Bacillus Kochs Weeks . . . . .	x		x			
Bacillus Trachus . . . . .	x					
Bacillus Hemaglobophilic . . . . .						
Trachoma Inclusion . . . . .	x				x	

We have not found any of the objective symptoms of Syphilis in the Indian, and subjectively, symptoms have been conspicuous by their absence. Dr. White had a number (6) Wassermann tests applied, all with negative results. We, therefore, according to our large clinical experience, do not believe that syphilis has any connection whatsoever with Trachoma. We are, however, in a position to assert that in cases where



nebulæ were found in young Indians, and the lids appearing absolutely normal, there was a history of an early gonococcal infection, some dating from the puerperal period, and others transmitted to an apparently healthy child through extrinsic causes. Dr. Williams' finding of the Trachoma Inclusion in the eye and the genitourinary tract will bear out our inference that if there is any systemic cause for Trachoma, that Trachoma may be an attenuated degree of a gonococcal infection. Tubercular Adenitis and other forms of tuberculosis do not have any bearing on Trachoma in our opinion. We may cite a case of interest in this connection—could cite many. C. C., a girl, 18 years of age. Incipient Phthisis Pulmonica, now at a state

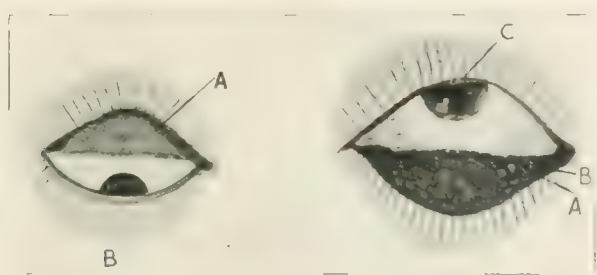


Fig 7 -Trachoma

a—Hypertrophy and follicles.

b—Beefsteak appearance.

c—Ulcer of cornea—

Treatment with euson, cleared after expression

a—Normal; upper lid; note veins.

sanitarium under tubercular treatment, presents Trachoma in the cicatricial stage early in life, vision 20/70 minus each eye, deep dense opacities of the cornea visible to the naked eye under proper light reflection and readily distinguishable by the retinoscope in the dark room. There is no doubt that her Trachoma has existed for a period of from ten to twelve years at least, and if so early in life she is tubercular, it is more than probable, that under the conditions in which she lived before entering school, she would be in an advanced stage of tuberculosis rather than the incipient stage, if living at all. We might add that in this case as in many others we were unable to detect any Pannus. On the other hand, A. B., female, 17 years of age, general health excellent, presents cicatricial stage, great impairment of vision, presents deep opacities of the cornea and Pannus. In 16 cases of Tubercular Adenitis which Dr. Treibly

has had under observation and Tuberculin treatment, but one case presents Trachoma in the cicatricial stage with deep opacities of the cornea. Calmette's Ophthamoreaction, whilst positive as to Tuberculosis, showed no increased reaction due to ocular lesion present.

Our experience shows that in old Indians presenting Trachoma in the cicatricial stage with Pannus, Rheumatism is in the majority of cases present. Whether or not the uric acid diathesis is to be associated with Trachoma we do not know.

Dr. Eaton, of Portland, Oregon, in the OPTHALMIC RECORD of October, 1910, infers that Trachoma is a parasitic condition. He states that flies, gnats, and other biting insects act as an intermediary host, the primary host being the horse and the final host the human body. This would lead us to believe that men working around stables where excreta of the horse is apt to collect are prone to the disease. We might state that the Indian's horse is very seldom or never stabled, but allowed to run wild, so that there is very little opportunity for excreta to collect in piles where flies would be apt to hover around, so that we are not inclined to believe that the fly plays such an important part in the spread of Trachoma as an intermediary host in the manner in which Dr. Eaton would infer. We are of the belief with Maccallan of England, Chief Ophthalmic Inspector of the work being carried on in Egypt, that the fly does carry the disease from a Trachomatous patient to one not so unfortunately afflicted. Maccallan, on the other hand, is of our belief that "Trachoma is a purely local affection, depending on no diathesis or constitutional state, but purely a local infection, with an unknown but specific organism." (Ophthalmic conditions in the government schools in Egypt and their amelioration, 1908.)

Chiefly among the indirect carriers of the disease may be mentioned: uncleanliness, dirty finger nails, bed clothing, wearing apparel, using the same basin of *cold water*, (either the same basin or the same water) towels, bannisters, door knobs, books, pencils, desks, and other school room supplies, gymnasium equipment handled many times over by so many different pupils, mail, money, etc. Bankers and post office employees have contracted Trachoma in southwest. (Oklahoma and Arizona.) Swimming pools are disseminators of the disease, dust from rough board floors and clay floors. Occupation may be mentioned as a determining factor in the disease such

as tailoring, launderers, teachers and others coming in contact with books, etc., used by Trachoma persons, lack of soap and hot water, and two sleeping in the same bed; also deficient ventilation, and sunshine and poor nourishment, handshaking, and musical instruments. Any conjunctival inflammatory conditions whether due to bacteria or eye strain predisposes one to the disease.

Another factor entering into the infection of the Indian's eye is the habit that a large number of the different tribes prac-

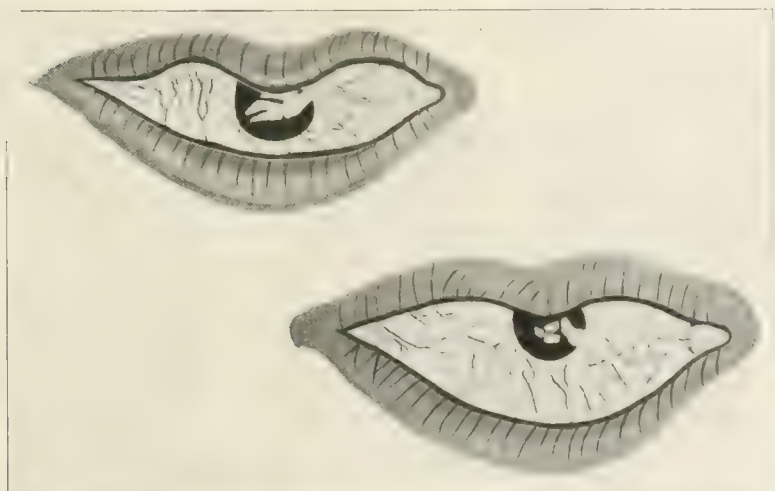


Fig 8—Old Trachoma  
Completed Destruction of Vision, showing Pannus, Large Leucomas  
and Deformity of Eyelid.

tice, and that is shaving the eyebrows, thus allowing perspiration to fall into the eye. Long hair such as most of the older Indians wear and allow to hang over the forehead may carry any infection which may be present in the hair to the eyes.

We have taken up to some extent in the foregoing paragraphs the etiologic factors, direct and indirect, entering into the causation of Trachoma and the carrying of the disease once established. We will now take up a classification of the disease and what our experience has taught us, a description of each progressive stage.

I. Incipient Stage, where we are unable to distinguish between conjunctivitis or any other inflammatory condition of the eyelids. In this stage there are no subjective symptoms,

and it is very probable that had the patients' eyes not been examined in ordinary routine the condition would probably go undetected. We may in this stage find numerous pin point elevations on the upper conjunctiva which might be due to eye strain. Dr. White states that out of approximately 500 eye examinations made in public schools in Oklahoma, about 45% showed at the outer canthus of the upper lid a number of small pin point follicles, not due to eye strain which were diagnosed Trachoma, due to the extreme prevalence of the disease in that vicinity, some of those cases may not develop into true Trachoma from a clinical view point. It is, however, very likely that the majority of these cases will develop into true Trachoma, with its characteristic clinical appearance. Dr. Wootton, of New York, up to a year ago firmly believed all such cases were Trachoma, but at the present time a great upheaval of previous teachings is taking place as to whether or not these cases are Trachoma. The only positive way in which we can make a diagnosis in these cases when in doubt or when diagnosis is disputed, will be when the true Trachoma bacillus has been isolated. Our views on the subject are, however, not so constricted as to eliminate any new proven theory on the early diagnosis. It must be positively affirmed that there are numerous cases presenting Trachoma in adults in its final stages, which were diagnosed early as Conjunctivitis due to refractive errors. It is important that we make an early diagnosis. *As long as the cornea is not involved Trachoma appears to be such a harmless complaint that the victims are not aware of its presence.*

In a recent visit to New York City, and Philadelphia, I found the same old story in differentiating follicular conjunctivitis from Trachoma. It is a question in my mind whether those men hinge on the diagnosis of Trachoma. It reminds me of the general practitioner telling his patient his trouble is Uric acid diathesis, or especially in female patients with some unknown complaint, to diagnose the condition as neurasthenia. In many Indian schools, I have found the typical follicular conjunctivitis as diagnosed by New York men. This conjunctivitis, as they honestly called it, I believe, is found in many cases I examined, on the upper eye lid, while the lower eye lid shows a true unmistakable Trachoma. It is my firm belief that the upper eye lid of this patient will show true Trachoma when the condition advances. This may be vice versa. I do not care to enter into the differential diagnosis of follicularis and Tra-

choma, as we have many able and honest and conscientious men on both sides of this important question. I trust the bacteriologic examination is only a question of time before we can diagnose those cases without a doubt. (White.)

I desire to say it is very easy to make a wrong diagnosis in cases of Trachoma which resemble chronic conjunctivitis of the beefsteak variety of the upper and lower eye lids. I have, no doubt, made this mistake before I paid special attention in those classifications. I recall a number of schools I have attended in which a majority of doctors would diagnose chronic conjunctivitis, which was nothing less than the beginning of the third stage of Trachoma. Those cases do not present follicular formation. A number of cases would be diagnosed chronic conjunctivitis of the upper eye lid, but on examining the lower eye lid closely, you will find *Arlts* streaks (strips of scar tissue), by using a condensing lens on the upper eye lid, you could also detect the beginning of cicatricial tissue. I cannot make this statement too strong, as I have seen many white men and women in the state of Oklahoma in the last stage of Trachoma, who had this condition, more than likely, years ago."—(White.)

2. Follicular stage. There appears on the conjunctival tarsal and retro-tarsal fold, usually at the two extremities, small follicular formations of variable size from pin point to sago grain, of grayish or grayish yellow appearance, semi-transparent and almost avascular, with minute blood vessels converging toward them. This condition may or may not be accompanied by a mucous discharge, or upon arising in the morning the eye lashes may be matted together and a small hardened mass is seen in the inner canthus. This hardened mass has been noticed in over 90% of patients under 17 years of age, no secretion being present."—(White.) This stage, as it progresses, is accompanied by a slight degree of hypertrophy which increases as the disease progresses. There is a bluish tinge to the conjunctiva and the blood vessels are elevated and prominent, especially on the lower lid.

Symptoms. The patient, to give his language, complains of a feeling as of grains of sand beneath the eyelids, the light hurts the eyes, the eyes are itchy, there is a burning sensation, and they are watery; there is a heavy feeling of the eyelids. These symptoms, as very often is the case, may be altogether absent, due to the slow, insidious development of the disease.

Objectively, we find all the symptoms enumerated under a



description of this stage. We desire to state that in cases where there is a purulent discharge noted, it is our belief that it is not due to Trachoma, but to some super added infection in addition to Trachoma. We believe that in 90% Trachoma cases there is no secretion, but will admit that the super added infection augments contagion.

3. Follicular and Hypertrophic stage. This is, to a marked degree, a progressive 2nd stage. The tarsal and retro-tarsal folds present a superabundance of gelatinous granules. In some cases these granulations run together and form a tumor-like mass or masses, and appearing as one glassy, gelatinous body. This condition may remain as such and may pass directly into the final or cicatricial stage, or may take on a more exaggerated form resembling raspberry like elevations which mask the gelatinous granules. This is especially marked on the upper conjunctiva and may be misdiagnosed as a purulent conjunctivitis.

Symptoms. All subjective symptoms of the 2nd stage are increased in this stage. *At this time the patient complains.* When the vision is tested we find it below normal. In the majority of cases when we examine the pupil in the dark room, haziness and sometimes slight nebula is distinguished, and which is not visible to the naked eye in daylight.

In a report of societies appearing in the OPTHALMIC RECORD over a year ago, there is a statement that "the damage done to vision has been exaggerated, etc." Also, "the danger of contagion cannot be great." We note that taking Dr. Zentmayer's clinic from 1902 to 1909, 8,968 cases, plus Dr. Norris' clinic from 1890 to 1902, 15,000 cases, there were but 454 cases of Trachoma, and as "he remembers the average vision in the better eye was 5/15 and its more unfortunate fellow 5/35." We regret to dispute such an authority as Dr. Zentmayer on the "exaggerated damage done to vision." "Whole families become infected with Trachoma from the intimate contact of the crowded home. Lack of attempt to obtain medical treatment finally results in permanent impairment of vision or even complete destruction of sight. (From "Health Problems of the Indians," by Joseph A. Murphy, M. D., Medical Supervisor of U. S. Indian Service. From the public health movement, annuals of the American Academy of Political and Social Science.) Our vast experience covering thousands of cases of Trachoma especially in 2nd and 3rd stages, causes us to disagree with Dr.

Zentmayer, as the damage to vision in Trachomatous patients over 40 years of age has been amazing. Does Dr. Zentmayer see the advanced cases? He should not, if our quarantine stations are properly conducted, and also state inspections. We have had many cases with dense Pannus formation under 18 years of age. Dr. White relates of recently seeing a number of cases under 17 years of age in company with the oculist of the institution, Dr. M. K. Thompson of Muskogee, Oklahoma, in the Oklahoma State School for blind at Fort Gibson, Oklahoma. We have before us at the present moment, a report on the recent examination made by us, of all pupils at the Carlisle



Fig. 9. Trachoma Pannus.

Indian School. Out of 190 cases of Trachoma present at the institution, there are 98 cases showing impairment of vision far below 20/20, due to Trachoma and not refractive errors, (dark room examination.) This impairment of vision is greatly increased among the reservation Indians, especially those over 40 years of age. We can show case after case of Pannus in those older Indians. "Arizona, New Mexico, Oklahoma, Texas, etc. (White.)"

In regard to the statement "the danger of contagion cannot be great," under proper prophylactic conditions, we are compelled to agree with the writer of that article, but amongst the Indians and others, whole families are afflicted with the disease, due very likely to faulty sanitary and hygienic conditions.

Other authorities claim that there is very little danger of carrying or contracting the disease in the 3rd stage. We believe there is danger in all stages and can support this state-

ment especially when a patient has had Trachoma in the final stage, and a number of employees, both Indians and whites, have contracted the disease from that patient. As we said before, in Pannus or extension of Trachoma on the eyeball, the danger is also present of contagion. (Trachoma of Eye Ball, important factor. After operating on cicatricial cases and treating them, this is especially true, the infection has been conveyed to other individuals. "Injury of the deep Trachomatous tissue such as Tarsal Cartilage, etc.—White.")

We have also found that an astigmatic glass in some cases of old Trachoma with opacities, will improve the vision to a slight extent. "Report on 65 cases. Carlisle Indian School. 1911. (White.)" We account for this by the fact that Trachoma on the cornea produces an uneven curvature.

The second most frequent cause of blindness is Staphylococci. This condition is generally associated with Uveitis, and Xerosis also appears at this time. There are, however, cases where the lids have gone into the cicatricial stage and none of the foregoing sequelae are found. Those cases are in the minority. The Pawnee tribe of Indians in Oklahoma present Pannus in over 90% of cases over 40 years of age, and over 35% of those present double Cataract, while at the present time their children from 5 to 15 years of age present the cicatricial stage of Trachoma. We are prone to believe if they are not treated, Pannus will result in the majority of cases when they reach their parents' age. This is also true of the Pueblos of Arizona and New Mexico. "Shall we operate and remove the tarsal cartilage and conjunctivae in those cases? Is it justifiable to look forward to what has happened to their people, and what may happen to them? This is a question for deep study. (White.)"

Many authors are of the opinion that Pannus is due to the mechanical irritation of Trachomatous lids. We are not fully of the same belief. It is our opinion that Pannus is due in part to the lowered resistance of the individual and the lowered vitality of the corneal layer due to an extended Trachoma from the eyelid to the eyeball itself. We, however, do not dispute the fact that the hard trachomatous lid will prove to be one of the factors producing Pannus, but we do not hold it as the most important.

*New Diagnostic Point*—White and Trebley—When the patient reads the test card, the vision is 20/100 in both eyes. Instill a few drops of a 4% solution of Homatropine into the

eyes and the patient is enabled to read from 20/70 to 20/50. This improvement in vision is due to the dilatation of the pupil, thus giving a greater field of vision over the nebula, which will be found upon dark room examination. In the slightest cases of nebulae or haziness of the cornea, the *retinoscope* will reveal the condition much better than oblique illumination or the ophthalmoscope. The wave like opacities on the cornea can be detected by the retinoscope. (White.) This is the earliest objective symptom of corneal involvement.

4. Cicatricial stage. In this stage the hypertrophied condition is not as marked as in the preceding stage. Instead of being soft, the follicles become hard and in some cases ulcerate and necrose, while in others this ulcerative necrosis is not visible. "And may never take place." (Treibly and White.) The follicles atrophy and appear as knobs of hard granulation tissue, finally forming with the hypertrophy, the beginning stage of cicatricial tissue. "Chronic conjunctivitis is often diagnosed in this stage by the inexperienced physician. J. W., F. P., Carlisle Indian School, 1911. (White and Treibly.)" This cicatricial tissue appears to be a fine network of lines running parallel with the papillary margin. In other cases the whole lid may become cicatricial, the lid losing its elasticity and giving the drooping lid appearance. The underlying structure, including the tarsal cartilage, is affected, which brings about such sequelae as entropion, ectropion, canthosis, trichiasis, dacryocystitis, etc. "This band of tissue forming along line of culeus subtarsalis is termed 'Arts Streak' and is the most common cause of Entropion.—White.)"

The chief subjective symptom in this stage is the great impairment of vision. Keratitis is very common, with the continual formation of small ulcers on the cornea. The patient recovers from the Keratitis under active and proper treatment, but there is a continual recurrence at frequent intervals. This is where the chronicity of the disease is made evident to the practitioner who has never had any experience in the treatment of Trachoma.

At the time of the formation of the corneal ulcers, the dreaded feature of Trachoma appears—Pannus. This may be very slight or marked. It is hyperemic at first, but as time progresses it becomes avascular and now appears as a cloud over the pupil. It is difficult to detect, in many cases, outside of the dark room. "Even in this stage where nebula and leu-

coma are formed on the cornea they are very indistinct, and to the one without Trachoma experience, could not be detected with the naked eye." -White. (Note test given under 3rd stage.)

### *Treatment.*

1. Prophylactic. All cases of known and suspicious Trachoma should be isolated. Individuality is the principal feature in this connection—individual towel, bed, running water, (not basins nor sinks; shower baths, not bath tubs) the thorough disinfection of all bed clothing, school room desks and other school supplies; all dust collectors should be removed, such as an over supply of wall hangings, curtains, etc. It is not my intention to criticise the State Public Health Departments of Oklahoma and Arkansas, but only to suggest more stringent law enforcement in the barber shops. It is a daily occurrence in the small towns to see a barber use the same hot or cold towel on a man's face either when shaving or performing facial massage. This towel had been used before. Since I know of Trachoma being so prevalent I ask the barber beforehand for a clean towel. I honestly believe Trachoma is often conveyed in this manner. The single towel and basins and also wash basins with stopper and public bath tubs should be abolished in hotels and all public institutions. Running water from a spigot and individual towel should be substituted. (White.) Means should be taken to prevent dust from collecting in roughened floors. In some parts of the West the oiling of the roads have been resorted to, to keep down the dust, and this act of itself, forgetting for the moment Trachoma, should be commended. Personal cleanliness should be insisted upon, the nails should be kept clean; the free use of soap and hot water in bathing is to be advocated not only as a hygienic measure sometimes neglected by the healthy individual, but as a sanitary measure in the Trachomatous patient. Strict quarantine measures should be enforced, although we regret to state that these measures are treated rather lightly not only in some communities but in some states. Trachomatous patients should not be allowed to mingle with others any more than we would allow Scarlet Fever and Small Pox to wander promiscuously in a community. Again, in a community where Trachoma is known to exist, no matter how few the cases may be, an examination of the eyes of that community should be made at least once every three months. If a known case of Trachoma should



disappear from that neighborhood, efforts should be made to determine as to its destination so that the health authorities of that locality may be notified. Co-operation on all sides should be the key note.

2. Systemic. Under this form of treatment to be used in conjunction with prophylactic measures and measures to be taken up later, we must insist upon a good, well cooked, wholesome, nourishing diet, not necessarily rich in proteids; proper ventilation of sleeping and living quarters with plenty of fresh air and sunshine, but kept away from exposure to the winds and dust; general tonics such as the Syrup of the Iodide of Iron, Fowler's Solution or Elixir of Iron, Quinine and Strychnine Phosphates, in fact all that goes to build up the bodily vitality and thereby increasing the natural resisting powers of the tissues to disease.

3. Medicinal. This form of treatment is of doubtful value to the patient. Amongst drugs used in the past Argyrol in a 20% solution was used for a number of years with no result. The trachomatous condition, if any benefit was derived at all for a time, returned and in many instances progressed from the first to the second and third stage. Astringents have also been employed such as Copper Sulphate. This treatment was very painful and very few cases were benefited by its use that could be considered absolutely beneficial. In our opinion the medicinal treatment is simply a sparring match with stern realization, and we are eventually brought to face the fact that all we have accomplished has been a waste of time which may prove detrimental to the patient and to our ultimate results. We know mechanical interference or operation will cut short the active duration of the disease, and it is up to us to give the patient every benefit which days, weeks or months may carry to him. The following astringents have also been used which some authors report with success: Silver Nitrate, Lead Acetate, Tanno-glycerine, Boro-glycerine, Corrosive Sublimate, Iodine and many other astringents too numerous to mention. We do, however, believe that astringents do have a beneficial effect on hypertrophied tissue, but we are inclined to believe that too much attention has been paid to astringents in the past and too little attention paid to absorbent treatment such as Yellow Oxide of Mercury Ointment and Brown Ointment. (Casey Wood.) "Improvement of Vision of Trachoma cases, under this treatment. (White.)" MacCallen of England also places

great faith in the local irrigation of the eyes with Bichloride of Mercury, solution of 1:10,000. *The astringent, and absorbent and friction massage, is as necessary as the operation itself.*

4. Operative. Up to a few years ago the expression of the follicles by some form of forceps such as Knapp's Roller Forceps, Noye's, Prince's and Kuhnt's forceps, had been and are at the present time, very popular in expressing or milking out the follicles and hypertrophy. We admit this form of treatment has been a great advance, but it has its drawbacks, which we might mention—the formation of cicatricial tissue in the too free use of those instruments. In our recent examination of 746 pupils at the Carlisle Indian School a number of cases which has been operated upon a year before and diagnosed at that time as being in the beginning second stage of Trachoma, presented a small amount of scar tissue. We believe that the Trachoma was not of such severity and sufficient duration to reach in that short time Nature's cure, scar tissue, and we believe the forceps and strong astringent treatment afterward, responsible. This is, of course, the result desired, but only an involvement of scar tissue in the mucous membrane and not that dipping into the tarsal tissue such as we found.

We are not trying to altogether displace the forceps method, but after an experience of 1200 cases with Dr. Geo. Phillips, of the Indian Service, operated under the Sand Paper method of Coover of Savannah, Ga., we must advocate the success of this method. We do not wish to detract in any way, the credit due Dr. Knapp, (Knapp's Roller Forceps) for the advance he made in Trachoma.—The great Pioneer and Teacher of American Ophthalmology. The Indians and whites complain of more annoyance and in some cases pain, under the operation with forceps. Dr. White claims, since he introduced sand paper for operation procedure in the Indian Service, that the Indian does not have the annoyance as he had from the use of the forceps.

Our operative procedure in cases where we found hypertrophy with superficial follicles, was to use sand paper alone. In hypertrophy with deep follicular formation sand paper and forceps are employed. In marked hypertrophy either sand paper or the light application of Knapp's forceps showed excellent results. In cases showing superficial follicular formation not accompanied by hypertrophy, sand paper proves of great value. The forceps have not proved beneficial in cases of hard

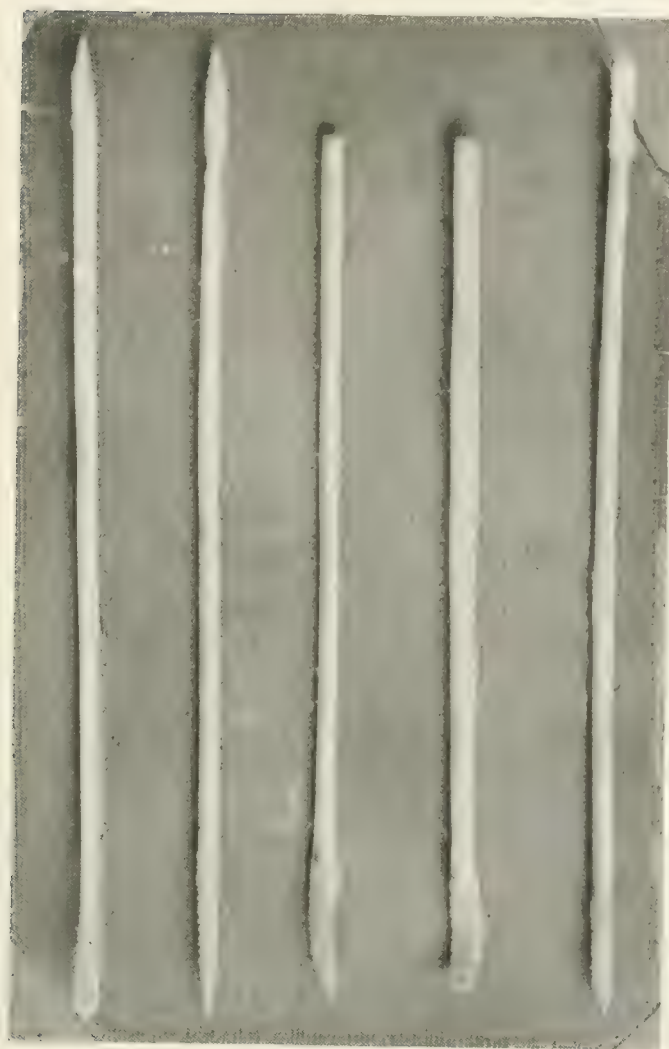


Fig. 10.  
Daniel W. White's Trachoma Silica Rasps

follicular formation and in these instances, sand paper has proven its efficiency. In cases where the lids are rough and granular, just beginning the cicatricial stage, sand paper and the Kuhnt forceps or rasp, has been employed with good results.

We have not been able to sterilize the sand paper with any great degree of success, but in this series of cases, we have had practically no corneal involvement due to the sand paper. Out of 45 cases of sand paper operation, 4 cases presented a slight Keratitis. All those cases were in the last stage of Trachoma and the cornea was involved before operation. The eyes should, following the operation, be flushed with a normal salt solution and the eyelids wiped with cotton sponges to remove all possible remaining grains of sand.

At Dr. White's suggestion and with the assistance of Dr. Phillips and Mr. R. E. L. Daniel of Pawnee, Oklahoma, there will be within a short time placed upon the market White's Silica Trachoma Rasps. (Sand or orangewood sticks.) These rasps are made in five different shapes and angles so that every portion of the eyelid can be reached. They are used only once and then discarded, thus preventing the danger of reinfection.

Before taking up the radical measure of tarsal resection, we may first scarify deep through the cicatricial conjunctiva into the tarsal cartilage with a scalpel, and then apply the roller forceps in order to break up the conjunctival and tarsal cartilage. In this way, we relieve some of the pressure of the lid on the eyeball, thus helping the corneal involvement.

In cases where the aforementioned forms of operations fail, and in heretofore apparently helpless cases of Trachoma in which vision was nil we have at our disposal an operation known as Combined Excision or the removal of the palpebral conjunctiva and the tarsal cartilage of the lid. Briefly, the operation consists of the removal of the palpebral conjunctiva a few millimeters below the papillary margin, and the underlying tarsal cartilage, and covering over this raw surface with ocular conjunctiva by stretching it and bringing the sutures on the skin surface of the eyelid in co-aptation so as to hold them in place. Dr. White had over 35 cases of this prior to Jan. 1, 1912, and his success has been amazing. At the present time, under Dr. White's instruction, Dr. Landes and Treilby of the Indian Service are securing good results. When Dr. White introduced this radical measure into the Government service, the

Indian was very naturally afraid of the procedure, but since he has been able to show and give results, they are anxious to have it performed. I find on my records, (Okla.) an Indian, F. B., age 48. Give history of blindness, both eyes, for eleven years. Examination showed cicatricial eyelids. Dense Pannus. Operation performed, combined excision and three weeks after treatment vision fingers 10 ft. Expect improvement in vision to continue. Dr. White recalls an old and chronic case of Trachoma (J. B.) in which Dr. M. K. Thompson, oculist of Muskogee, Okla., had been treating for a long time with very little result. With Dr. Thompson's invitation and the patient's consent, Dr. White performed the removal of mucous membrane and tarsal cartilage and in ten days' time, you could not realize it was the same case. He (the patient) insisted on having the other eyelid operated, and I believe since that time, have been the same as many others, converts to this seemingly radical measure. The vision in the majority of those cases was greatly improved and in some cases a vision as high as 20/30 was obtained. Cases which we had heretofore given no hope, vision was restored and not only that, Trachoma is supposed to be eliminated for all time as the Trachomatous tissue has been removed. We do, however, leave the papillary margin, which, it is believed from a medical standpoint, does not have any bearing on the furtherance of the disease. This, however, cannot be supported from a legal standpoint (immigration.) We do believe that this operation has passed the experimental stage, as we know Wootton of New York and think Casey Wood and Woodruff of Chicago are of our belief in what can be expected of the operation.

We still have another operation—the palpebral conjunctiva without the tarsus can be removed or vice versa, but if we want to eliminate the Trachomatous tissue, both should be removed.

In this experience we have had one case of Entropion and one of slight Ectropion develop, which we ascribe to faulty technic and not to the operation itself. This was easily corrected. We have not had a single case of Ptosis of the lid produced by this operation, nor any apparent contraction of the lid.

*Treatment for Pannus.* Here is indicated the removal of all Trachomatous tissue, especially by the tarsal resection. The operation of Pannus Dissection has, in 22 cases, (White) given amazing results. "*From official reports of Dr. D. W. White.*" Vision has been restored in many totally blind Indians by this operation. I consider this a radical measure, but in apparently



hopeless cases its value has not been surpassed by any measure. (White.) A circular incision at the sclero-corneal margin is made around the cornea, and the Pannus with its connective tissue formation is picked up by an iris forceps, tension is produced and at the same time a dull point scissor is used to dissect off the Pannus. There is considerable danger of perforating the anterior chamber and unusual dexterity must be used in performing this operation. The first day after the Pannus is removed the raw corneal surface becomes somewhat hazy, but this condition generally clears up in from three to six weeks time. By this operation we have given totally blind Indians a vision of 20/40.

Peridectomy or circum-corneal incision and removal of a small strip around the cornea has not in our experience proven what many authors claim for it.

Also Periotomy or an incision around the sclero-corneal margin has helped the Pannus condition but little. We may add that in those procedures, in a number of cases, a violent reaction occurred.

We are not as yet able to report on the success of the Carbon Dioxide Snow treatment. It is claimed in Germany, where it is being used quite extensively in Trachoma, that considerable success has resulted. Our conclusions on the treatment will be reported later.

Our routine in all operations heretofore described has been to administer to the patient forty-five minutes before operation, one H. M. C. tablet, and if necessary another tablet is given just before operation. We never employ a general anesthetic. The H. M. C. is followed by the instillation of 2 drops of a 2% Cocaine solution every two minutes for ten (10) minutes. When the patient is placed in the dorsal position for operation, powdered cocaine is applied by the use of cotton pledgets wrapped on a toothpick, to the lids, and the pick disposed of. Dr. White says that in over 2,600 cases of Trachoma operations where powdered cocaine has been used, no toxic symptoms have been observed. I have not used general anaesthesia in Trachoma operations except in rare instances. When I do use general anaesthesia, especially in other eye conditions, I administer 1-3 chloroform, and 2-3 ether. I find this better than chloroform or ether alone. In adjunct to this, I use H. M. C. powder hypodermically, 45 minutes before the operation. I may also state that I was the first one to use powdered cocaine

as a strictly Trachomatous measure. (White.) Always have patient properly prepared for operation and in a dorsal position and have necessary stimulants, etc., for cocaine. Patient's physical condition should be examined, especially their lungs and history of any nervous condition known.

I desire to say I was the first to perform, and also to introduce the operation of Combined Excision, in Oklahoma, and at present operating daily on combined excision cases, more than any man in the U. S. Will report in my next article. I am also the first one and, I believe, the only one performing this operation of Pannus dissection, in Oklahoma. I believe a man in Alabama performed four (4) cases of Pannus dissection. I had not been able to find any literature on Pannus dissection outside of this man from Alabama. (See OPHTHALMIC RECORD 1911.) I may also say I have introduced the sand paper operation for Trachoma, in Oklahoma. (White.)

*After Treatment*—Whatever forms of the foregoing operations have been employed, the after treatment as we shall describe, is as absolutely necessary as the operation itself to make the procedure a success. It may be stated with a great degree of certainty that in cases where the after treatment has either been neglected, or has not been kept up long enough, or has not been administered at all, that every case thus conducted either shows a recurrence or re-infection. "This especially applies to papillary form of Trachoma in young children or pin-point follicles.—(White.)" It has been our experience and also that of Dr. Ancil Martin, Chief of the U. S. Eye and Trachoma Hospital in Phoenix, Arizona, in reviewing statistics of thousands of cases treated for Trachoma, the average duration for after treatment for success, in mild cases has been not less than five months.

Of the astringents upon which we place our faith, copper sulphate crayon stands out prominently. The good effect of copper sulphate is probably due to the polymorphonuclear leukocytosis attacking the disease. We have also had some success with silver nitrate. Tannic Acid and Boroglyceride and Iodic Acid in stick has also been employed, but it is our tendency not to use astringents to the degree that we formerly did, but are relying more on absorbents such as yellow oxide ointment 1% and Brown Salve. (Casey Wood.) We believe the absorbent does more to help the condition than the astringent, but as yet we must give astringents first place, especially where hypertrophy is marked. Dr. Wyman at the Sac and Fox Indian

School, Stroud, Oklahoma, has been using yellow oxide for 15 years and has, without a doubt, saved the vision of many Indians. The vision of the Indians at this school was better than in the majority of schools, even when Trachoma was in the last stage.

Massage of the eyelids with either powdered boric acid, calomel or parts of the preceding and iodoform is very important, and we consider a lot of our success in the treatment of Trachoma to be due to Friction massage. Massage of the lids can also be performed by wrapping a piece of gauze on a toothpick and without any further medication than that of sterilizing the gauze and the pick. Friction is what we desire in the treatment of Trachoma.

It has been my custom to use either iodiform powder in friction massage of the eyelids or iodoform ointment in different strengths on the eyeball with massage. In old Trachoma cases which are a bane to every man who has had experience in treating Trachoma, especially where the cornea is involved with ulcers and Pannus, iodoform powder in some form will act as a curative agent. In cases of old Trachoma which suffer from reactions at intervals I have had excellent results with iodoform powder. Hot compresses add to the efficacy of this treatment.—(White.)

Nebulae on the cornea are very stubborn to handle, but fortunately where they are not too dense our treatment has cleared some of the opacities up entirely, and made marked improvement in others. Yellow oxide massage to the eyeball, with atropine 1% and hot compresses, has been our main measure in our success. When the treatment is carried out conscientiously on the part of both patient and physician, in ten (10) weeks time we have had marked improvement in vision due to this treatment. Internally we administer in addition to the above described treatment for nebulae and leucoma 3 grains twice daily of Theosinamine, and hypodermically three times weekly, Fibrolysin in the gluteal and muscles of the back.

In the few cases in which the x-Ray has been used, the results have been fairly good, but not any better than those obtained by ordinary therapeusis or operative procedure. With improved technic and particularly with the ability to measure the exact dosage of the rays, it would seem that the method offers a fair prospect of success, and should be given the fullest trial. Radium has also been used. Stevenson and Walsh also recommend the application of a high frequency current through

a vulcanite electrode applied to the upper lid. (De Schweinitz.)

In all cases of beginning cicatricial stage, Theosinamine, 3 grains twice daily may be administered. Dr. White is still in the experimental stage in the use of sulphur both as a massage drug and also hypodermically, this idea being carried out with the belief that possibly Trachoma is a parasitic infection.

*Prognosis.* The prognosis depends upon four elements:

1. Degree of virulence of the Trachoma.
2. Sequelae.
3. Method of treatment.
4. The time the patient is under observation.

The patience of both the patient and the physician is thoroughly tested in Trachoma. We believe that under ideal conditions a few cases are cured, and more are curable under such favorable circumstances. Where Trachoma has proceeded through one or more stages without treatment and the underlying tissues of the lid are attacked and involvement of the eyeball itself, we are at present of the belief that the patient will suffer from Trachoma during his entire life either by slight symptoms, or at any time be liable to the unfavorable sequelae enumerated when treatment is not properly instituted or carried out. There is no quick road to the cure of this disease. Long, faithful work on the part of physician and patient is necessary to bring about the best results, and individual needs must be met in each case. No patient should be discharged as cured until his lids are smooth and so remain after weeks, even many months from the time treatment is stopped, and such patient should have treatment afterwards whenever it shall have been deemed necessary by an authority on Trachoma. (From article on Trachoma among Indians, by Drs. White and Harrison, Feb. 2, 1911, U. S. Government Printing Office.)

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## POINTS IN THE TREATMENT OF CORNEAL ULCERS.

CHAS. WRAY, F. R. C. S.

LONDON, ENGLAND.

Immense pains have been taken to identify the various organisms in cases of ulceration of the cornea. The results have been interesting from the clinical standpoint, but have contributed very little indeed to advance the efficiency of treatment and the omission in the text books of certain details must constitute my apology for adding to what has been written on the subject.

Of course the first step in every case should be to see no mechanical causes of ulceration exist and that the lachrymal passages are in good working order, but an enquiry as to the nature of the dominating bacillus is, at least in hospital practice, quite impracticable. For many years after satisfying myself upon the above points, I have made enquiries as to the condition of the stools and find that, at any rate in children, they are almost always not merely offensive, but very offensive. In cases of phlyctenula ulcer this is especially the case. At first sight, in view of the modern notions of its pathology, this seems not a little incongruous, but the clinical facts must be left to speak for themselves. Dr. Zeigler recently called attention to the necessity of due attention to the bowels, and it was urged that the modern clinician pins his faith on antiseptics, whilst the older ones used to clear them out. The proper course is to combine the two. It is certainly the fact that parents seldom or never volunteer any information as to the offensiveness of the stools, but that is because they are unaware of their condition. It is unnecessary to labour the expediency of ridding the child of the noxious contents of the bowels. Important though this is, another matter relating to the intestinal tract is of perhaps greater importance, but does not seem to have induced writers of text books to give it even the most cursory notice, so again the facts must be left to speak for themselves. Offensive motions being the rule, and as neither children nor adults are always strictly cleanly in their habits, it is clearly our duty to inculcate habits of surgical cleanliness. How many persons make a habit of washing their hands after a visit to the lavatory? Mr. Arnold Lawson recently showed how patients infected with *B. Coli* infected the conjunctiva and doubtless in future the urine will be as carefully watched as the motions.



The mouth, too, in many cases of corneal ulceration is in an exceedingly unhealthy condition. Once it is realised how organisms may be conveyed from the anus, mouth and urine, one of the first rules in the treatment of corneal ulcer will be: "The eyes never to be touched with unwashed hands." To omit to give this advice, is to my mind a blunder as grave as the omission to make enquiry as to the condition of the excreta. The above are the two main points, though a few words on application may not be out of place. In my own practice to a very large extent antiseptic lotions have been replaced by normal saline solutions. In some cases Lot. Hyd. Perchl. 1 in 10,000, and similar preparations are still used, but in the following way: The applications are made by means of cotton wool—a piece the size of a walnut is soaked in the lotion and transferred to the closed lids. The wool is kept on for several minutes and a little of the lotion is allowed to percolate into the eye all the time. It is impossible to kill the prevailing organisms, and the object of this method is merely to restrain the growth. Argyrol one uses much weaker than in the past, indeed 5% seems at times more efficient than 15-20, and it is much less likely to induce argyrosis.

As regards diet, bread and milk and once a day underdone meat. The latter is minced very fine and so disguised with grated toast that the child is not aware what he is eating.

As my letter is merely intended to be a special pleading communication in favour of more active prophylaxis, one has merely touched the fringe of the subject.

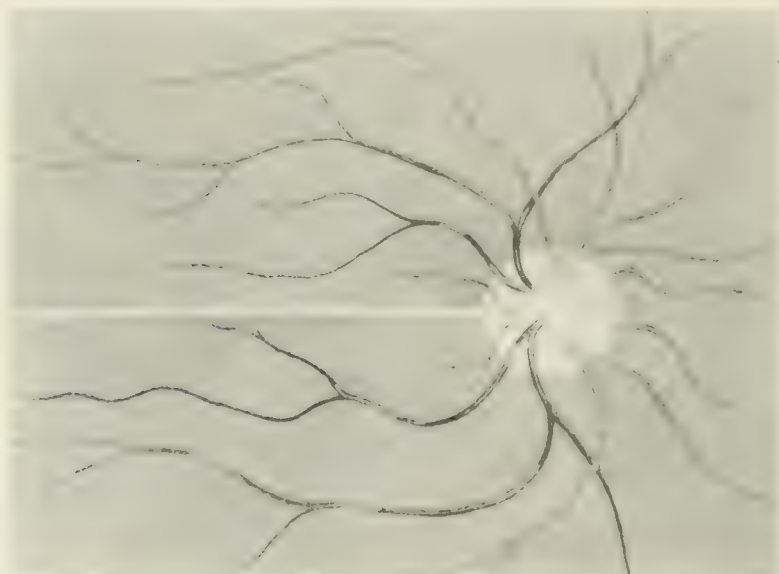
# SINGLE RUPTURE OF THE CHOROID INVOLVING HALF THE CIRCUMFERENCE OF THE EYE-BALL.\*

BY FRANK C. TODD, M. D.

MINNEAPOLIS, MINN.

F. G., male, age 18, farmer. Consulted me March 7, 1912.

History. When 10 years old patient received a severe blow in the left eye from a man's fist. Total blindness ensued which lasted three days, and the eye was inflamed for a time; sight poor



Rupture of Choroid.

ever since. Has never had the eye examined by an oculist. Examination shows vision right eye 6/5, left eye hand movements.

Examination with the Ophthalmoscope shows a single rupture of the choroid beginning from exactly the middle of the nasal margin of the optic disc and extending evidently completely around the nasal half of the choroid; at least, it can be seen to exist as far toward the periphery as the fundus can be seen. This rupture is a little wider than the largest vein of the retina and is located exactly in the horizontal meridian of the eye-ball for the whole distance (see illustration). It looks like a straight chalk mark on the fundus of the eye. The blindness doubtless resulted from the injury, and there is a haziness and apparent edema in the region of the macula.

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\*Reported and case shown before the Minnesota Academy of Ophthalmology and Otolaryngology.

## REPORT OF SOCIETIES.

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### THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

MEETING FEBRUARY 8, 1912.

THE PRESIDENT, DR. WENDELL REBER, IN THE CHAIR.

#### Trichloroacetic Acid in the Treatment of Corneal Ulcers.

Dr. W. W. Watson. Trichloroacetic Acid, a monobasic, crystalline organic, discovered by Dumas, in 1883 and made official in 1890, is a powerful caustic, and in aqueous solution is used in the treatment of corneal ulcers. Applied with care, the solution of five to twenty-five per cent, strength is very beneficial in inhibiting germ proliferation without destroying cell life. The haziness of the cornea which follows the application clears up in one to twenty-four hours with no unfavorable symptoms. If hypopyon is marked, apply a strong solution daily, but for most purposes the weaker strength should be selected with repeated applications.

The acid is to be preferred to ointments and collyriums, as it is easier for the patient, and more certain; it has the advantage over operations in that it offers no opportunity for further infection through fresh wounds, and excels the thermocautery in that it does not destroy adjoining healthy tissues.

The acid checks the liability to corneal perforation, and compared with other caustics lessens corneal opacity.

Dr. Charles E. Shannon exhibited a case of Hypopyon Ulcer of the Cornea treated by Corneal Incision.

A laborer, 50 years old, had some lime splashed into his right eye, severely burning the cornea. Despite prompt and energetic treatment, an extensive purulent ulcer with marked hypopyon developed in the course of 5 days. Operative treatment was deemed expedient in view of the rapidly increasing hypopyon; and under cocaine anesthesia an incision was made *in healthy corneal tissue* with a narrow Graefe knife immediately below the site of the ulcer. This was followed by the complete evacuation of the inflammatory exudate. Within two days the wound had healed and the anterior chamber reformed; and within ten days the ulcer was completely covered over with epithelium. The final result was perfect, the cornea showing only a fine diffuse scar.

*DISCUSSION.* Dr. D. Forest Harbridge had had little experience with trichloroacetic acid, having used the pure drug only, in a limited number of seriously infected cases. Regarding Saemisch's incision, Dr. Harbridge said it had been several years since he last performed this operation. He felt it to be a very destructive procedure, and that if the incision be made in healthy tissue as far away from the pupillary area as possible the results would be just as effective. He prefers employing a keratome, believing that the wound made by this instrument heals better and quicker. The incision he makes just inside the limbus; if necessary it may be repeated at intervals of a few days. He believed the draining of the anterior chamber in itself beneficial to the healing of an ulcer as well as the removal of the hypopyon. Often mal-nutrition is a contributing factor in the development of the hypopyon ulcers, or at least people who are under-fed are more susceptible to slight damages to the cornea.

Dr. Wendell Reber: Ulcers are generally classed as simple, infected, complicated and perforated. Simple ulcers that follow after foreign bodies in the cornea almost always take care of themselves. In infected ulcer with infiltrated edges, atropia is indicated invariably, with hot stupes. It is wise to indulge in internal treatment at the same time. Calomel should be given because it assists the blood in manufacturing antibodies to resist the infection. The complicated ulcer is the one which is being discussed this afternoon. Tincture of iodine, carbolic acid or 1 per cent. formalin may be used. I may say that my use of trichloroacetic acid has been in 25 per cent. solution; I once used it pure. It is difficult for me to persuade myself that it does as well as some other remedies. It is highly diffusive, it is very hygroscopic (moisture hungry) and it attracts some of the moisture away from the normal cells, so that it is open at least partially to objection. Carbolic acid is even more strongly to be avoided in my estimation than trichloroacetic acid, and one must have a very delicate touch to use carbolic acid safely as the acid is apt to be deposited where it is not intended to be put. The organic silver solutions have almost gone out of vogue, but if you will read the old authors you will see how much they were used. Tincture of iodine, as far as my information goes, does not damage normal conditions, nor is the pain very bad from it, particularly if an application of ice follows immediately after the application of the iodine. I took the trouble once after using

trichloroacetic acid to stain with fluorescein and much of the corneal tissue whitened by the acid took the stain.

1 per cent. formalin appeals to me for three reasons: 1, it will not damage normal corneal tissues; 2, it does not extend to normal corneal tissues; 3, it toughens the very membrane you wish to keep intact.

A young woman in the Samaritan Hospital with Neiser's Conjunctivitis, had a large hypopyon. She received daily local treatment of iodine, and internally had serum treatment, with biniodid of mercury, quinine, iron and strychnia. We saved her cornea without an operation but the floor of the ulcer was very weak and began to bulge. 1 per cent. formalin was applied daily for a week and the contour of the cornea became normal. I cannot help but think that the formalin was of value in toughening up the thinned corneal wall. I agree with Dr. Shannon in the belief that an incision in the normal corneal tissue is superior to the Saemisch incision through the ulcer itself.

Dr. Charles R. Heed: I have recently treated two badly infected ulcers with considerable hypopyon. On one case I did a corneal incision below. He had considerable pus but the wound healed almost immediately. In the other case Dr. Sweet had tried chemical treatment (iodine) but the hypopyon increased. The eyeball would have been lost if he had not done corneal incision. I saw the patient less than a week ago and his eye was saved. He has a very good eye, ocular tension is normal and in time, if he should lose the sight of the other eye we could do an iridectomy and he would have quite good sight.

Many of the cases of hypopyon ulcer we get at the Wills Hospital come from the anthracite coal mines. They will certainly perforate if you don't relieve the tension. I rather condemn the Sameisch section. You are apt to take away a large part of the corneal tissue and pull out the floor of the ulcer with it. Naturally there is always iritis with hypopyon ulcer.

Dr. Harbridge stated that during the past month he had had four opportunities to test dionin in four cases of subconjunctival eachymosis. Three were cases of moderate spontaneous hemorrhage. One absorbed in four days, the second increased the first three days, finally absorbing in thirteen days (from onset). The third, the normal eye being taken as a control (no dionin being used), absorbed in fifteen days. The fourth, a very extensive traumatic hemorrhage seen four days



after injury, absorbed in twenty days (twenty-four days after injury), leaving a yellowish discoloration such as is frequently observed following extensive hemorrhage. Dr. Harbridge was somewhat skeptical as to the value of the drug in such cases.

Dr. Reber: I do not believe in the indiscriminate use of dionin but in new or fresh subconjunctival hemorrhages it seems to be of much value. I insist, however, that the subconjunctival extravasation be not over 24 hours old when dionin is used. After that time hematoidin deposit delays the action of any drug. To assist in relieving the pain of iritis, I believe in dionin. To assist the action of atropia in such cases, I believe in it. To promote the absorption of postoperative debris, I believe in it. To hasten the absorption of a recent corneal scar, I believe in it. Its effect rapidly diminishes after the first week when it should be supplanted by subconjunctival injections of normal saline, or yellow oxide or mercury salve. All three of these agents promote lymphatosis and are at times interchangeable in their effect. Finally, as I pointed out some years ago in one of the first papers in this country on dionin, in those rare cases of glaucoma following certain cases of iritis when we are undecided as to whether we should resort to miotics or mydriatics, dionin is an admirable straddle.

D. FOREST HARBRIDGE, M. D.,

Secretary.

## WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF MARCH 5, 1912.

DR. WILLIAM ZENTMAYER, CHAIRMAN.

### Microphthalmos.

Dr. J. Norman Risley presented for study a case of microphthalmos in a child five months of age. It was impossible to demonstrate the presence of light perception in either eye. The right eye was about the size of a shoe button, while the left was apparently of normal size. The mother attributed the deformity to the accidental pushing back of the right eye into the orbit by the attending physician during delivery, which while not instrumental was very prolonged and difficult, with the expectation of a still born child.

The ophthalmoscopic study of the left eye was very unsatisfactory through a pupil that dilated only slightly under atropine, and no view of the disk was obtainable, but there were extensive atrophic areas through the fundus.

The child was the fourteenth of apparently healthy, sober and industrious parentage. All had been born at term, one however living only about one and a half hours, and one still born after the mother had received a severe mental shock when she was expecting labor.

It was during her sixth pregnancy that she received the erroneous report that her husband had been killed. She went into a state of unconsciousness lasting two weeks, during which time the child was born dead. Upon regaining consciousness she was completely deaf and blind. The hearing was restored in about a month and vision returned in the left eye in about a year, but at this time there is no light perception in the right eye and no fundus changes can be seen to account for it. It is of course not likely that there is any connection between this and the condition of the child presented for study today since there have been seven healthy children born since.

Dr. Posey suggested that the condition in both eyes might be explained by an involvement of the mesoblastic tissue during foetal life, in consequence of syphilis in the mother. He referred at some length to microphthalmos and its causes, and spoke of a case recently observed by him, where microphthalmos in one eye was associated with a cyst, while a coloboma of the iris and choroid was present in the other eye.

Dr. S. D. Risley discussing Dr. J. Norman Risley's case of microphthalmos said that in consideration of the mother's history of blindness from shock complete and permanent in the right eye and partial in the left, it was difficult to disassociate in one's mind the occurrence of the ocular conditions in the child, from the notions at one time so generally entertained, regarding maternal impressions. Remarking that everyone present had doubtless seen many interesting occurrences in this connection, he recalled a striking example occurring in his own early experience where a child had been born with a forearm severed by the encircling cord at the exact place where the father's arm had been amputated for a gun shot wound during the Civil War. The distal remains of the atrophied forearm was still adherent to the stump. The suggestion of Dr. Posey that the choroidal atrophy in the blind eye of the child was possibly due to intra-uterine syphilis, he thought should be considered as a possible etiologic factor, but it did not seem probable since the mother's health seemed perfect and she had been the mother

of fourteen children all healthy, perfect children, except for the ocular defect in the child brought before us for study.

Dr. Burton Chance remarked that the subject of "maternal impressions" on anatomical structures is a most fascinating one; he believes however, that those connected with formation of the eye are merely coincidental rather than direct. The stages of the development of the optic vesicle are accurately known and their time precisely accounted for. Undoubtedly, most of the malformations are of inflammatory origin and have not been caused by psychic or inherited forces producing disturbances of the embryologic elements. In direct support of Dr. Risley's and Dr. Posey's suggestion that toxic influences have had a decided influence in the case of this child. It is interesting to recall Pagenstecher's findings in a series of experiments he made upon pregnant rabbits to which he fed naphthalin. Not only did he find cataracts in the offspring, but also malformations of the lids and globes; and these malformations could be influenced by timing the administration to coincide with the period at which the embryologic differentiation occurred. He was able to bring about adhesion of the conjunctiva to the cornea; to interfere with the development of the lids; microphthalmos and even anophthalmos. He proved that intoxication was necessary, because in later pregnancies when naphthalin was not given, the progeny were healthy and well formed.

Dr. Harbridge referred to a case of unilateral microphthalmos in which there was no history of previous injury or shock to the mother. The delivery was non-instrumental. Vision fingers at two feet. Along the lower border of the cornea there was a curvo-linear scar. There was slight ciliary injection and in the fundus bands of connective tissue formation were observed.

Regarding the question of so-called "maternal impressions" Dr. Harbridge stated that while many cases may be quiet misleading from a superficial point of view a recent experience forces him to believe that all may be accounted for as pure coincidence. At the suggestion of a physician he was requested to examine a colored child a few weeks ago who was reported to have been born without eyes. Eight months previous to the birth of the child Dr. Harbridge had performed a Mule's operation upon the mother.

An examination of the child revealed an apparent absence

of both globes although the lids, orbits, etc., were full formed. Feeling confident that at last a genuine case of "maternal impression" had been discovered Dr. Harbridge began to confer with medical friends regarding the subject. Adverse criticism suggested a re-examination and a more careful inquiry into the history. During confinement the mother had been attended by another woman, no physician being present. A few days later a free discharge from the eyes was established, and upon one occasion while the eyes were being washed an unusual jelly-like secretion was wiped away. A more thorough examination revealed two small, shrunken, pea-sized, cyst like remains of what undoubtedly were at one time the globes. The condition was the end product of a case of neglected ophthalmia. Despite this explanation the parents and friends believe the child to be marked.

### **Leucosarcoma of the Choroid.**

Dr. S. D. Risley presented for study the microscopic mounting and microscopic slides from a case of leucosarcoma with the laboratory report. The man, aged 50, had been assigned to his service in February with a totally blind eye. Failing vision had first been noticed in August, 1911, and had steadily advanced to complete blindness. There had been no pain or notable inflammatory reaction at any time, nor had there been any history or ocular disease or discomfort. The eye was white, tension normal, and the pupil reacted. After dilatation a grayish-yellow nodular mass with blood vessels coursing over its surface and filling the greater part of the ball, was seen. The mass came well forward into the ciliary region on the nasal side and could be readily studied with oblique light or the ophthalmoscopic mirror. The absence of any history of ocular inflammation seemed sufficient to exclude the diagnosis of disease of the pseudogliomatous type; while the patient's age, the somewhat rapid development of the growth pointed to its probable malignant character. The removal of the globe was therefore advised. The laboratory study by Dr. Nelson M. Brinkerhoff which is appended has confirmed the diagnosis.

Pathological Report: On microscopic examination the external appearance was normal. The anterior chamber was of normal depth and was filled with a brownish yellow exudate. The iris and ciliary bodies were somewhat thickened. The lens showed cataractous changes. The main body of the growth oc-

cupied almost the center of the vitreous chamber, and appeared to spring from the superior nasal region. It was mushroom in shape, the base being smaller than the apex. On the anterior surface there had been a free hemorrhage apparently of recent occurrence. The choroid in the region of the growth was very much atrophied, and appeared to be separated from the main body by a lighter translucent film, about 1 mm. in breadth. The retina was detached, oedematous and adherent to the growth. Beneath it was a homogeneous, gelatinous exudate, which extended a few mm. beyond the advancing surface of the growth. The nerve showed no pathological changes. On microscopic examination the growth proved to be a small, round cell leucosarcoma.

On account of the danger of metastasis to the liver, Dr. Posey deemed it wise to remove all eyes suspected of containing sarcoma, in which the vision had been abolished and in which there was a large mass in the vitreous even though tension was not elevated. While transillumination was of value, the reflection of the rays of light might be blocked by a mass of lymph or blood, as well as by a neoplasm, and the operator must at times advise enucleation when the precise nature of the case was in doubt.

#### **Foreign Body in Vitreous Chamber.**

Dr. S. D. Risley presented a patient sent by Dr. Ross of Altoona, with a metal fragment in the vitreous chamber of the right eye. The body had penetrated the ball through the inner half of the right upper eye lid on Friday, March 1st. The man reached the hospital on the following Monday morning with V—6/xii. Localization by Dr. Sweet showed the foreign body 20 mm. back on the corneal pole, 6 mm. to the nasal side of the vertical meridian, and 8 mm. below the horizontal plane. The electric ophthalmoscope exhibited a gray line through the vitreous from near the point of entrance of the foreign body to a point near its localization where it was lost in a gray opaque vitreous. The bulbar conjunctiva and episcleral tissue below and to the nasal side were markedly chemotic. A conjunctival flap was raised at the lower, nasal quadrant of the globe, a scleral puncture made and the foreign body extracted with the magnet. It proved to be a rusty, friable scale of metal 6 mm. long, 4 mm. wide and 1 mm. thick. The patient was placed in bed under the usual treatment. The eye passed rapidly, in 24



hours, into a state of violent panophthalmitis with orbital cellulitis and profound general infection. Temp. 102  $\frac{4}{5}$ , rapid pulse, dusky, flushed skin; swollen and painful submaxillary and cervical glands, and a distressing cough and congestion of the lungs which, however, did not pass into pneumonia. Dr. Risley had never witnessed so violent an attack of orbital cellulitis or such rapid destruction of an eye from any form of panophthalmitis. The ball was freely incised and free incisions were made into the orbital tissues, but without any free discharge of pus. Laboratory study of the discharge showed the Friedlander bacillus and profuse quantities of streptococcus and staphylococcus. For two or three days the man's life was in serious peril, but at the time of the report seemed on the road to recovery. Dr. Risley presented the case for study not only as an unusual example of rapid destruction of an organ by local mixed infection, but because it awakened the inquiry as to whether the general infection was already present at the time the injury was received and the local conditions secondary, or, did the general disorder result through absorption from the local infection. The man had suffered a severe attack of pleuropneumonia a few years before from which he had made a lingering recovery. At the time he received the eye injury he was under his physician's care for some general ill health, which he describes as backache, poor appetite and a general malaise, and states that his physician had asked for a specimen of urine for examination, but the accident intervened and prevented any further study.

Dr. Posey said that he thought it not unlikely that the orbital cellulitis in Dr. Risley's case was occasioned by endogenous infection in consequence of some blood condition of the patient which doubtless existed before the accident. To demonstrate this association, he presented a boy with many of the signs of tuberculosis of the ciliary body, in whom the manifestation of ocular disease followed a blow upon the eye from a door. Dr. Posey recalled how often abscess of the orbit was observed in tubercular subjects even after slight trauma when the integument was unbroken, and referred to a recent paper in which Mora had recorded a number of instances in which orbital symptoms were set up in nontubercular subjects by the action of staphylococci acting endogenously upon the site of the contusion.

#### **Tuberculosis of the Ciliary Body.**

Dr. Posey presented a case of probable tuberculosis of the

ciliary body in a boy, following a slight blow upon the eye. When first seen, several days after the accident, the lids were slightly swollen but not discolored, but the eyeball was much injected. The outer half of the anterior chamber was filled with what seemed to be a turbid aqueous, though the humor in the inner half of the chamber was clear. Descemet's membrane appeared crumpled over the area corresponding to the turbid aqueous. The iris immediately posterior to the affected tissue was vascular and decidedly raised above the plane of the rest of the membrane. Filling the pupil and apparently responsible for the localized turbidity of the aqueous, a thin layer of whitish lymph was seen, which apparently issued from the ciliary body at a point corresponding to the raised and vascular areas in the iris. Von Pirquet reaction negative. Wassermann reaction not tried.

#### **Bi-Lateral Dislocation of the Lens.**

Dr. P. N. K. Schwenk presented a case of bi-lateral dislocation of the lens in a man 46 years of age, where the lens had dropped into the anterior chamber and later had fallen back into the posterior chamber. He had requested the senior house surgeon to instill one drop of homatropin to dilate the pupil, and have the patient lie on his face when by gravity the lens might drop forward into the anterior chamber again, and if this occurred to instil eserine and hold it there, until it could be removed. Four hours after the instillation of the homatropin the patient had the symptoms of acute glaucoma. The next day the patient was etherized and as much of the lens looped out as could be seen, followed by an attempted iridectomy. Several days following the operation the lens cortical in the capsule was seen suspended from above, the capsule having become incarcerated in the wound. In two weeks all the lens had become absorbed and only a few shreds of lens capsule were visible. Today the eye is quiet and the iris is nearly normal below but drawn up above. The vision of the other eye is 6/9. A sister of the patient was operated on by Dr. Schwenk four years ago when he removed the dislocated lens from her right eye, with a resulting vision of 6/12. The left eye was enucleated because of glaucoma following the use of Drops.

This is the third case that has come under his observation and Dr. Schwenk deemed it of sufficient interest to present to the society. Does the lens serve as a factor in producing glaucoma? It is evident from these cases that the loose lens acts

as an irritant and as a foreign body only, and its swelling is not the exciting factor; but glaucoma follows dilatation of the pupil when the lens is dislocated and we should avoid the use of mydriatics in such cases.

Dr. Chance was inclined to regard the rise of tension in Dr. Schwenk's case as having been caused by the effect of ciliary irritation. The dislocation of the lens from the region of the zonula had not of itself given rise to the glaucomatous symptoms, but on the contrary, the inflammation of the ciliary region had disturbed the osmosis of the intra-ocular fluids and had brought about the increase of tension through the retention of fluids of excessive density.

#### **Congenital Symblepharon.**

Dr. Zentmayer presented a patient with congenital symblepharon and other malformations. N. G., age 7½ years was a full term baby. Before an operation performed 5 years ago a translucent skin covered the entire cornea when the eye was directed forward, and one-half of the cornea when the eye was turned in. The father thinks the eyeball increased in size after birth.

P. C. Slight epicanthus. There is a redundance of conjunctiva which is adherent to the cornea over the lower outer third and extends as a broad band to the outer canthus. The canthus is broad and blunt, the conjunctiva merging with the skin of the temple. There is a strong convergent squint. When the eye is abducted the conjunctiva is thrown into a second fold which covers the cornea at its upper outer third. There is a moderate grade microphthalmos. The pupil is slit-like and displaced upwards. V=—counting fingers at one meter. The other eye is normal. There are scars where supernumerary tragi and thumbs have been removed. There is a malformation of the mouth similar to that of the palpebrae fissures. The redundant conjunctiva was dissected off from the cornea, a deep cul-de-sac was made, the incision being carried down to the lower orbital margin, the raw edge of the conjunctiva was then attached to the periosteum of the lower orbital margin as in Week's operation for contracted socket. A tarsoraphy and a free tenotomy of the internal rectus was performed.

Dr. Chance said the adhesion of the lid to the globe in Dr. Zentmayer's case was like a case of congenital symblepharon he had under his care several years ago in a woman with cataracts, whose daughter also had congenital cataracts; and he was of

the opinion that a toxic influence had been at work here, so that Dr. J. Norman Risley's case might well be linked with Dr. Zentmayer's for the purpose of study.

J. WILSON GRISCOM, M. D.,

*Secretary*

### THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

A CLINICAL EVENING WAS HELD AT THE MEDICAL SOCIETY'S  
ROOMS ON THURSDAY, FEBRUARY 8, 1912.

THE PRESIDENT, MR. J. B. LAWFORD, IN THE CHAIR.

Mr. Robert Doyne showed a case of guttae iritis. He said he had never seen a case in a man. The guttae were independent, in position, of the inflammatory points. The guttae, within a few days, might have completely changed their position. In this patient a week ago there were four well marked spots, but now there was only one. It seemed to be an exudation between the layers of epithelium where it was reflected; usually the subjects of the condition were gouty. The President reminded members of the cases shown by Mr. Doyne two years ago, and they seemed to have occurred only in cases of chronic iritis. If the condition happened in acute iritis it might be missed in the general haze.

Mr. Charles Wray showed three cases of frontal sinus disease, with pathological specimens; also a severe case of ingrowing lashes treated by the electro-cautery. He said that although Ziegler advocated that for entropion the cautery should be at a white heat, his own experience was that it was better at a dull red heat; and he preferred the thermo-cautery.

Mr. Wray also showed a cyclo-phorometer and described his method of testing. The case was discussed by Mr. Worth, who referred to a book he published 10 years ago, on the subject.

Mr. G. Coats exhibited a case of unilateral proliferation of the uveal pigment, and Mr. Treacher Collins one of unilateral melanosis of the uvea and sclera, with elevations on the affected eye. These were discussed together. Mr. Coats said there was evidence that the spot was there shortly after birth, and it had increased considerably in the last year. There was increased pigmentation of iris, fundus and sclera. The point of most interest was the presence of elevations on the surface of the iris. Twenty-six cases of the kind had been recorded, and of those no fewer than 7 developed sarcomata in the eye late in life. The commonest age for it to occur was between 50 and 60, and the age of the youngest case recorded was 34.

Mr. Collins said he had his case under observation and care.

backwards and forwards, for ten years. Not every case of melanosis showed elevations on the iris. Some years ago he showed, at the Society, sections at the seat of melanosis, apparently dating from birth, in a man *æt.* 60. He thought it was melanotic sarcoma of the ciliary body. He recently re-examined that section and found it remarkably free from elevations.

Mr. Hewkley raised the question whether it was the rule for the irides to be a light-gray color at birth.

Mr. Leslie Paton showed a case of hole in the macula, which he considered differed from ordinary cases of hole in the macula, and from the 15 cases collected in Mr. Ogilvie's paper, in the fact that the hole was bluish white. There was no history of injury in the case, yet there was some evidence that it was a recent occurrence. There had evidently been considerable retinal disturbance all around the macular region. Apart from the hole, the general appearance was like that of albumenuric retinitis, but there was no trace of albumen in the urine, and no other organic disease.

Mr. Greeves showed again a patient with recurrent unpigmented tumor of the sclera, the case having been brought forward originally in October last. Removal was done, and later there seemed to be a recurrence, but the scar tissue which began to form seemed to strangle the tumor, and it had now disappeared. The first tumor was pronounced to be a very cellular haemangioma.

Mr. Cuttingham showed two cases: (1) cholesterine crystals in the anterior chamber; (2) retinal hemorrhage and exudation in a young subject. The second case he regarded as one of vascular disease.

The President, discussing Mr. Cunningham's second case, said he saw the lad in hospital, and no condition had been found which was likely to be casually related to the eye condition: nothing, for instance, in the blood-cell count, or the coagulation time, or the presence of any bacterial condition. The possibility of lead poisoning had also been excluded.

Mr. Doyne considered that the case belonged to the class which Mr. Eales had worked at, and which he called spontaneous haemorrhages, but which had not had much light thrown on them. He tried to find out something about the condition years ago, and was convinced that the veins, not the arteries, were responsible for the haemorrhage. The cases seemed to be limited to men, but not to young men, as Eales thought. The whole eyeball might appear to be suddenly filled with blood. The



cases which he had seen, recovered, sometimes with very good vision, leaving some silvery stains in the retina, and sometimes some membrane in the vitreous. In one case he found that the blood tension was very low. Von Pirque was positive.

Mr. Harrison Butler said Professor Axenfeldt had proved several of these diseases to be due to alterations in the retinal vessels, and he pointed out that nearly all the cases had a tubercular basis.

Mr. Leslie Paton did not agree that these cases were analogous to cases of intervitreal haemorrhage. One case he saw had some cranial nerve palsy.

Dr. Farquhar Buzzard said he knew the case to which Mr. Paton alluded. It was not a case of true Bell's palsy, because only certain fibres of the facial nerve were affected. He thought it might have been due to a local haemorrhage in the facial nucleus or the facial nerve. One could easily imagine, following on Mr. Doyne's suggestion, that it might be caused by a small tubercular deposit in the pons.

Mr. Cyril Walker referred to the case of a man aet. 21, who was healthy, but the sight of one eye was bad. He had many streaky-looking haemorrhages in the nerve fibre layer, and there were ten fairly large ones, the largest a quarter the size of the disc, and there were twenty smaller ones. In three weeks the sight improved a great deal. There was no macular star. Two months later the patient had a very large intra-ocular haemorrhage, which blotted out everything. That remained opaque until two months later, when it began to get translucent. The treatment was mainly rest, and the patient was also given some mercury.

Mr. Layton Davies related the case of a male clerk, aet. 19, who came complaining of severe headaches, and that a few days previously he was blind in his left eye. In the fundus, striate haemorrhages were found over the retina, and dilatation of the vein, with white exudation in the macular region. It looked like a case of albumenuric retinitis, but a physician found the urine normal.

Mr. W. H. Jessop considered such cases were somewhat allied to Raynaud's disease, or even haemophilia: the subjects of it when struck, rapidly became bruised. There seemed to be some defect in the coat of the arteries, leading readily to transudation.

The discussion was continued by Mr. Rayner Batten and the President.

Mr. Dawney showed a case of persistence of anterior portion of hyaloid artery.

## CORRESPONDENCE

Omaha, Neb., April 23, 1912.

Editor OPHTHALMIC RECORD.

Dear Sir: Regarding definite excision of the outer orbital wall as a substitute for the Kroenlein operation.

Since my article on this subject in the March, 1912 issue of OPHTHALMIC RECORD, I have read an abstract of Claiborne's article on Cylindroma of the Orbit, (*Archives of Ophthalmology*, March 18th, 1912, p. 171) in which he recommends excising an elliptical piece from the upper outer margin of the orbital wall as a substitute for the Kroenlein operation. This article was read the summer before at the American Ophthalmological Society, but had escaped my attention. Claiborne's idea is that by sparing the periosteum the defect in the bone will fill up. It may be that he is right about this, but even without any reproduction of bone, the operation which I have described leaves less deformity than the Kroenlein operation.

HAROLD GIFFORD.

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## HEADLIGHT TESTS.

Editor OPHTHALMIC RECORD.

Dear Sir: To any one who will take the trouble to compare my remarks concerning the Indianapolis "Headlight Tests" (vide Transactions Amer. Acad. O. & O-L. 1911, pp. 290-295) with Dr. Newcomb's recent report on the same (vide OPHTHALMIC RECORD, pp. 113-127) it will be apparent that two contrary opinions have been filed; but it should be remembered that here as elsewhere and often a difference in viewpoint not infrequently occasions difference in opinions. From Dr. Newcomb's viewpoint that the purpose of the tests was to demonstrate the superiority of oil headlights in the interpretation of signals and dissipate the popular notion that the electric headlight enabled engine-men to see ahead almost as well as in daylight, his opinions are worthy of consideration. From my viewpoint that the purpose of the tests was to demonstrate the relative merits of all the headlights commonly used, and thus determine whether trains of all classes should be equipped alike, my opinions are as worthy of consideration.

From the very fact that many roads, on their own initiative, had for many years equipped their high-speed trains with electric headlights, the superiority of these lights for trains of that class

had to be taken as practically beyond question. It was a conceded warning to the public at large. For the slow tram the oil head-light may answer every purpose; but in the light of the fact that engine-men as a rule prefer the electric, and no member of the commission objected to its use on the run to Avon and back, the "Scotch verdict" is applicable.

Unlike Dr. Newcomb, I have for many years been a "R. R. Doctor" and thus supposedly over-charitable to R. R. interests; but I have never made any headway by underestimating the claims of the opposition.

That the tests were not wholly fair, or the observations truly scientific is still my contention; and a request for an immediate opinion, without an opportunity to review the observation sheets, gives my contention additional support.

H. B. YOUNG, Burlington, Iowa, May 6, 1912.

## THE MICROSCOPICAL ANATOMY OF THE CORNEA IN 'ACROSTIC'.

BY R. H. HOUGH, M. D., HILLSBORO, TEXAS.

Epithelial coats of six to eight layers,  
Protect the eye from cinders and flayers;  
In case of trauma, which these coats removes  
This often occurs, observation proves  
Healing at once (unless infection  
Enters the wound) is nature's election.  
Lest you should think this injury bad omen,  
I call your attention to the membrane of Bowman;  
Until trauma, and infection the top coats removed,  
Merely a support for them it had proved.

But now at this stage of injury we exclaim,  
O membrane of Bowman, I see you remain!  
While you still resist the deadly attack,  
May I find the remedy to battle it back!  
And though scar tissue may be mixed with the new,  
Never was I so thankful—it didn't get you.

Substantia propria is the cemented mass,  
Under its meshes small lymph channels pass.  
But for these channels no nourishment could enter;  
Some corneal corpuscles are too, in their center.

There are (with the proper staining is found),  
 A system of canaliculi passing around,  
 Nicely connecting all the lymph spaces,  
 To carry the fluids in their nutrient races.  
 In event of severe or specific keratitis,  
 A hazy hue in this substance would excite us.

Placing the patient upon proper medication,  
 Reliable mydriatics are in close relation.  
 Opium, of course, is contra-indicated.  
 Pain, though severe, should be otherwise abated.  
 Restless for fear glaucoma should ensue,  
 Iritis and synechia our troubles would renew  
 And likely end our service with a crank patient, too.

Deeper we go toward the anterior chamber  
 Endothelial layer, don't forget's the remainder.  
 Severe though may be the intra-ocular tension,  
 Coming on behind or of anterior invention,  
 Ever resisting the pressure within,  
 Man and beast have proved their eyes are akin.  
 Even and round (though sometimes oblong),  
 This membrane of Descemet is certainly very strong.

Entering now to the aqueous, fairly,  
 New tissues we find (though found not so rarely),  
 Dividing this humor from structures beneath;  
 Over its surface is an impervious sheath.  
 This membrane destroyed, as is sometimes the case,  
 Heaven has given us none it to replace.  
 Entering upon their destructive career;  
 Leaving nothing at all intact, I fear,  
 I see now the aqueous humor and all,  
 Uveal tract, iris, lens and vessels small.  
 Moving to the outer world (complete staphyloma).

## NEWS ITEMS

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. A. T. Wanamaker, formerly of Chicago and now located in Seattle, Wash., is in Vienna for a course of post graduate work.

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Samuel Z. Shope, A. M., M. D., Sc. D., of Harrisburg, Pennsylvania, was elected President of the Medical Club of Harrisburg at the annual meeting April 26th.

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We learn with regret that illness has obliged Dr. Edward C. Sewell of San Francisco, to retire, temporarily we hope, from private and public practice, for treatment in a sanitarium in Arizona.

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Dr. Richard Nunn and Dr. Sherman E. Wright have formed a partnership, with offices at 213-215 Medical Building, Portland, Oregon, where they will continue special practice in diseases of the eye, ear, nose and throat.

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Dr. Casey Wood has returned home after spending a part of the winter in California. He devoted most of the time to a study, in the Stanford University, of the Comparative Anatomy and Physiology of the ocular apparatus.

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Dr. Frank Lee Drummond Rust, a well-known Boston ophthalmologist, died in that city April 10, of septicemia, aged 38. Dr. Rust was ophthalmic surgeon to Carney Hospital and associate professor of ophthalmology in Tufts College Medical School.

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A wealthy patient in Paris, France, who received a free operation and hospital attendance in a cataract case, was sued at the request of the Syndicat general des oculistes by the director of the hospital. The patient was obliged to pay damages of \$200.00, half given to the syndicat and half to the hospital. He had not only defrauded his oculist and the hospital, but had deprived a needy patient of a free bed. Such cases are to be reported in the future and similar action taken.



The Portland Academy of Ophthalmology and Oto-Laryngology was organized April 20 at a dinner given at Hotel Multnomah at which seventeen eye, ear, nose and throat men were present. The new society will have about thirty-five charter members.

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A genteel form of fee splitting. Now is the time to send them in without exposure to the investigations of the committee on Ethical Relations. The Maxim Institute, doing business within *gunshot* of the business centre of Chicago, will cure every case of Drug Addiction in a few days, the family physician being entitled to a "consultation fee of \$25.00 for each case sent us." Surely that is better business than acquiring a measly \$1.25 from the wholesale optician as a commission on a pair of glasses!

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The Heidelberger Ophthalmologische Gesellschaft meets this year on the 3rd, 4th and 5th of August in Heidelberg Germany. As usual the proceedings begin August 2nd with meeting at the home of Prof. Leber at 6 P. M. followed by an informal gathering in the Stadt garten at 8 P. M. Each day has its academic meetings, etc., and also some form of general entertainment. Papers and specimens must be in the hands of the secretary before the 30th of June. All communications should be addressed to Prof. A. Wagenmann, Heidelberg.

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A testimonial dinner in honor of Dr. H. Bert Ellis was given in Los Angeles, April 22nd, 1912, by about one hundred local medical men at the University Club at 7:30 o'clock. A letter to Dr. Ellis stated that "this dinner will be given as a slight token of our appreciation of your able and singularly successful management of the entertainment of the American Medical Association at their meeting in Los Angeles during the month of June, 1911," Dr. Norman Bridge was toastmaster, and Dr. William Monroe Lewis, president of the evening. The laity were represented by James Slauson, Frank P. Flinn, John D. Fredericks and J. W. McKinley.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N. W. U. Every day, 10-12 A.M.					
11 A.M.	W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) Wm. E. Gamble (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) E. K. Findlay (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) Wm. E. Gamble (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) E. K. Findlay (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) E. K. Findlay (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honoré Streets.	Pol.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.

# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

Vol. XXI

CHICAGO, JUNE, 1912

No. 6, New Series

## ORIGINAL ARTICLES.

### A CASE OF GUMMA OF THE EYE LID.

C. A. CLAPP, M. D.

Asso. Prof. Ophthalmology & Otology,  
Baltimore Medical College.

BALTIMORE, MD.

The patient, a widow of 54, presented herself at Dr. Crouch's clinic at the Franklin Street Eye, Ear, Nose & Throat Hospital on Sept. 22, 1911, with the history, that about one month ago she had the sensation of foreign body in the right eye, which was followed by a swelling of the upper lid, which has persisted until the present time. In the beginning there was no pain, but for the last two weeks has been very painful, especially at night.

Examination revealed a hard indurated mass near the inner angle of the right upper lid, measuring 6mm. x 3mm., the long axis extending vertically.

The skin was freely movable over the tumefaction. Inspection of the conjunctiva showed considerable chemosis of the ocular conjunctiva, but this also was freely movable. On everting the lid (which was very painful) there was seen a thickened area of conjunctiva with enlarged papillae covering the tumefaction.

The patient was treated with simple lotions until Sept. 25th, when an exploratory incision was made from the conjunctival surface, so as to eliminate the possibility of its being some form of cyst.

The knife encountered very little resistance and a tarsal cyst curette brought away only broken down cellular tissue. This material was stained and examined microscopically, but outside of extensive cell necrosis nothing could be determined.

On Oct. 1st there was seen a small ulcer of the conjunctiva close to the limbus, directly beneath the tumor of the lid. This

gradually extended until it involved the cornea for about 2mm. with superficial ulceration.

We now decided that we were either dealing with a form of tubercular or of syphilitic infection, so on Oct. 1st, 1911, we had a Wassermann reaction done which was reported triple positive, although no history of initial lesion or secondary eruption could be elicited even after the most careful examination.

The patient was admitted to the hospital Oct. 5th and given energetic mercurial treatment by inunctions—fifty grains at bedtime—with the continuance of hot compresses and atropin locally for corneal ulceration.

The rapidity with which the corneal ulcers began to recede and the general inflammatory reaction to subside was most gratifying, as a distinct betterment was noted after the second treatment, and the pain which had become most severe for the previous two weeks and which had not been controlled in the least by collyria of either dionin or holocain was immediately lessened.

The patient remained in the hospital for eight days, when she returned home, but continued the same line of treatment, reporting from time to time. At the end of three months the only evidences of a lesion were two little pimples on the external surface and a small cicatricial area on the conjunctival surface.

No ophthalmoscopic changes were seen at any time.

With the absolute positiveness of the blood reaction and with the equal certainty of the therapeutic test, I think we can be very certain in our diagnosis of a specific lesion.

In that case, however, we might be dealing with either a primary lesion (Hunterian Chancre) or the tertiary lesion (Gumma) both having somewhat similar characteristics.

In chancre, however, we usually see a distinct enlargement of the preauricular or submaxillary glands within three weeks of the infection, while this case has never shown any lymphatic involvement. Again, chancre usually is present either on the lid margin or on the cutaneous surface, very rarely on the conjunctival surface.

While primary lesions of the lids are rare they are frequent in comparison to tertiary lesions; Bulkey found 4% of extragenital lesions on the lids.

The tertiary lesions are most frequently seen as a general thickening of the lid, "A tarsitis," while a circumscribed tumefaction (gumma) is the rarest of all specific lesions.

While the syphilitic tarsitis is usually a painless condition,

those reporting gummata have usually found it associated with considerable pain. DeWecker (*Traite d. Ophthalmologie*, Vol. I) reports such a case, which he mistook for chalazion, which was very painful. Taylor (*American Journal of Medical Science*, 1875) reports two gummatus infiltrations of the caruncle and without pain.

Bull, C. S. (*Trans. Amer. Ophthal.*, 1878), reports a case of gumma of the left lower lid the size of a robin's egg, with little or no pain.

Hutchinson (*R. L. O. H. Reports*, 1878) reports a case of universal thickening which finally developed into a gumma, and states that tertiary lesions are seen more frequently in women than men, more frequently on the upper than the lower lid; that they usually show a marked resistance to treatment and as a rule are quite painful.

Although this condition is so rare that one even in a large clinic will see it but seldom, it should nevertheless be kept in mind, and I wish to call especial attention to its close resemblance to a somewhat indurated Meibomian cyst.

## ORBITAL CELLULITIS WITH REPORT OF CASE.

F. HOLDSWORTH, M. D.

TRAVERSE CITY, MICH.

Infection of the orbital structures resulting in cellulitis may originate from many sources, chief among which are metastases from remote phlebitis, facial erysipelas, inflammation of lachrymal gland and sac caries of orbital wall from inflammation in maxillary antrum and ethmoid cells, foreign bodies in the orbit, etc.

The case described began as an infection in ethmoid cells, which was transmitted to the orbital contents by forcible irrigation or excessive blowing of nose, both of which she was in the habit of doing. Infectious material might have been carried through the carious osplanum or through the anterior and posterior ethmoidal promina.

I first saw the patient in consultation with Dr. E. L. Thirlby, March 15, 1912 (A. M.). She had complained of some frontal pain for a few days previous to any swelling of parts which appeared a day or two before I saw her. The tissues of R. orbit were very firm and tense with a marked dusky hue, exophthal-



mas marked and considerable deviation of the eye to right. Chemosis was marked. Nasal examination showed an ethmoiditis of same side with some purulent discharge. The middle turbinate was swollen and pale in color. Patient complained of



March 17, 1912



March 17, 1912

severe pain and there was considerable twitching and jerking of R. Arm.

Local applications both ice and heat were used without any apparent improvement. Elimination had been carefully looked



March 24, 1912



March 24, 1912

after and nervous symptoms controlled as much as possible.

At 9 p. m. patient was again seen and all of her symptoms were aggravated. There was more swelling, chemosis increased and considerable subconjunctival hemorrhage had occurred. Temperature 102, pulse 98, respiration 26. Surgical measures

were deemed advisable and at 10:45 p. m. patient was operated upon. A curved incision was made, continuous with eye brow on inner side of orbit, about one inch in length and periosteum elevated over ethmoid. Not finding any pus an incision was made through the elevated periosteum, but no purulent discharge appeared. Other incisions were made in outer and superior parts of orbit about one and one-half inches in depth, but without immediate results. The enormously swollen conjunctiva was incised in three places, gauze drainage introduced in incision at inner side of orbit and patient returned to bed.

March 16, 8 a. m., not finding pus, a blood count was



March 24, 1912

deemed advisable to eliminate other conditions. Dr. R. E. Wells, pathologist of Northern Michigan State Hospital, reported as follows:

With Zeiss Thoma Haemocytometer:

No. of red B. corp. in c.m.....4,191,000

No. of white B. corp. in c.m..... 11,548

With Fleisch's Haemometer:

Hemoglobin ..... 90%

Stained specimens, white blood corpuscles:

Per cent large mononuclears..... 6.0

Per cent small " ..... 7.0

Transitionals ..... 4.0

Per cent neutrophiles ..... 85.0

Per cent Eosinophiles ..... 0.0

About this time (March 16, 8 a. m.) patient became more

comfortable. Temperature 100.6, pulse 88, respiration 20. Hot boracic compresses were applied and quinine grains ii given every three hours. March 16, 8:30 p. m. Temperature 100.4, pulse 68, respiration 18. Patient slept without morphine from 11 p. m. to 3 a. m.

March 17, 10:30 a. m. pus began discharging from opening at inner side of orbit. Temperature 99.6, pulse 68, respiration 18. March 17, 3 p. m., first photos taken. Calomel in small repeated doses was given followed by magnesium sulphate.

March 18. Distention of the orbital contents was not so marked and more discharge from drainage wound and right side of nose. Patient somewhat flighty.

March 21, 7 a. m. Temperature 98.6, pulse 68, respiration 17,

March 24. Second photos taken.

April 30. Last photos taken.

For a period of about two weeks in the month of April patient had some diplopia and a varying amount of pain. Her rise of temperature gradually subsided to normal in p. m. as well as a. m.

May 7, ethmoid cells were curetted.

At present, May 17, patient's general condition is improved, vision is normal and cosmetic result is satisfactory.

## REPORTS OF SOCIETIES

## COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF MARCH 16, 1912, IN DENVER.

DR. E. F. CONANT PRESIDING.

**Ectropion Following Pemphigus.**

Dr. W. C. Bane showed, on account of ectropion which had developed in the left eye, and of beginning involvement of the right palpebral conjunctiva, a case of conjunctival pemphigus already recorded. Fairly good results had followed a plastic operation in the contracted inferior cul-de-sac, using a flap obtained from the upper part of the bulb. There was however ectropion of the left lower lid to an extent sufficient to cause a good deal of annoyance from epiphora. X-ray applications had seemed to benefit the irritation, but the patient had derived the greatest comfort from occasional instillation of argyrol solution.

**DISCUSSION.** Dr. Black suggested that it would be desirable to attempt an improvement of the tear flow by removing a small V-shaped piece of tissue at and below the punctum.

Dr. Neepser thought it quite likely that the lacrimal passages were involved in the pemphigus, and that the condition of the passages should be carefully investigated before doing such an operation.

Dr. Walker would first do a grafting operation to try to bring the punctum into its proper position.

Dr. Patterson thought the operation suggested by Dr. Black would fail to leave the normal suction of the natural punctum.

Dr. Strater, who had seen a good many successful results from the use of this operation in his own practice and that of Dr. Gifford of Omaha, demonstrated the results which had been obtained by operations done on his own lower lids by Dr. Gifford. Dr. Strater also described the technique of the operation, which consisted of dilating the punctum until one blade of a pair of sharp curved scissors could be inserted with the convexity towards the eye, then turning the scissors and cutting at right angles to the edge of the lid, and again almost along the margin of the lid. The incision was really rather L- than V-shaped, and no tissue was removed, the flap being merely allowed to retract.

**Mydriasis and Cycloplegia of Unknown Etiology.**

Dr. D. A. Strickler presented a woman of 26 years who gave the following history. Four years previously her husband one morning called her attention to the fact that her left pupil was dilated. She noticed some blurring of the vision of this eye. She was treated with eserine, without benefit, and the condition had persisted ever since. There was nothing whatever in her previous record to explain the disturbances, except perhaps the fact that some months earlier she had had axillary abscesses (on which side was unknown). There was no specific or tubercular history. There was a very low refractive error, correction of which gave normal vision in this eye. There was no accommodation. The pupil reacted very slightly to light.

**DISCUSSION.** Dr. Patterson referred to a man he had seen whose pupils were very large at the first consultation, but next morning had returned to normal. His perimetric fields were full for form, but not for color, although there was no reversal or interlacing. Vision was R 6 6, L 6 9, without correction of low error. He would come into the office with normal pupils, and two hours later would have an attack of pain in the eyes, with the pupils large, the right more than the left. The neurologist had regarded the disturbances as purely functional.

Drs. Hess, Stilwell, Walker, Aufmwasser, and Neepser had all seen cases resembling that of Dr. Strickler.

Dr. Boyd remarked that in early pulmonary tuberculosis, of which inequality of pupils had long been regarded as one of the early signs, the accommodation was not affected.

Dr. Jackson was interested to learn how the pupil reacted to eserine, to cocaine, and to a mydriatic.

Dr. Strickler stated that the pupil had been contracted to a "pin point" size by eserine in the earlier treatment.

Dr. Black considered that the condition must depend on a lesion of the ciliary ganglion, and suggested a hemorrhage into the ganglion.

**Persistent Papilledema Perhaps Connected with Mastoiditis.**

Drs. E. F. Conant and E. E. McKeown presented a young woman the fundus of whose left eye had presented for between two and three months a rather marked papilledema, in spite of which vision had at no time been less than 20 30 minus. She had had a discharging left middle ear for eight years, and on 4th January came in reporting that she had been dizzy for the past week. She was then unable to walk across the room with-



out help. Corrected vision in the left eye (in which choked disc was then present) was 20/25. Next day Dr. J. M. Foster did a radical mastoid operation, exposing the lateral sinus, which was free from pus. The dizziness had greatly diminished, but was not quite gone. The ophthalmoscopic appearance had changed very little since the first examination. On 23rd January, under homatropin, the corrected vision was 20/15 minus in each eye. Vision tonight was 20/30 minus in the left. Headache only occurred after use of the eyes. Nystagmus was to the left. Dizziness was most marked on lying down. Since the use of potassium iodide a marked improvement in the dizziness had occurred, and when the drug had been stopped for a few days the dizziness became worse. There was apparently no nasal trouble.

**DISCUSSION.** Dr. Black stated that the results of tests he had made of bone and air conduction did not support the idea of labyrinthine disease. He would put the patient on mercury and have a Wassermann test made.

Drs. Bane, Marbourg, and Strickler, thought there was slight disturbance of the right disc.

Dr. Patterson recalled a case in which, with otitis media and nystagmus, there had also been papilledema.

Dr. Jackson thought intracranial trouble probable.

Dr. Neeper described a case he had seen in which the hearing had been very bad, the patient dragged both feet, and both optic nerves were involved. The case was thought one of brain abscess, but operation being regarded as impossible, iodide of potash was given, and the patient got well, except that one foot still dragged. Noguchi test had been negative.

### **Fulminating Albuminuric Retinitis.**

Dr. G. F. Libby reported a case of rapidly fatal nephritis in which examination of the eye-grounds had given the first indication of the presence of the disease. On November 9, 1911, the patient, a man of 29 years, came for ophthalmologic examination on account of pains over the eyes and misty vision which had lasted for a week, and also slight transient conjunctival redness. Correcting lenses gave vision 5/3, with accommodation 6.5 D., in each eye. The ophthalmoscope revealed a patch of retinal edema below and to the temporal side of the right macula, and one above and to the temporal side of the left macula; and smaller spots of edema peripherally. The patient

was referred to his general physician, who made a diagnosis of chronic interstitial nephritis. The blood pressure was between 180 and 220 mm Hg. Early in December the general condition grew worse, and the areas of exudate were more marked. On the 18th of December there were small retinal hemorrhages and left papilledema, and V. was R. 5 5 $\frac{1}{2}$ , L. 5 9 $\frac{1}{2}$ . The patient died suddenly a few weeks later on his way to the Riviera; the press dispatch stating that "at the time of his death he had become totally blind."

**DISCUSSION.** Dr. Neepér, who had also been consulted by the patient, stated that the latter's mother had died of Bright's disease at the age of 40.

Dr. Jackson referred to the case of a woman physician seen by him three months previously, who had at that time considered herself as in good health, but had died during the past week. The ophthalmoscopic examination had shown no edema, hemorrhage, or white spots in the retina, but there was a decided narrowing and kinking of the veins, and the blood pressure at the time of examination was 230 mm Hg. It was a case of advanced arteriosclerosis in a woman of 35 years. On the other hand, an older patient with extensive retinal changes and high blood pressure had lived several years.

Dr. Black recalled a case in which the patient had died 20 days after the ophthalmic examination; and another in which after symptoms pointing to the onset of uremia, on a milk diet blood pressure of above 200 mm had been reduced and the patient had lived for several years.

#### **Epileptic Seizures Stopping after Refractive Correction.**

Dr. E. R. Neepér reported the case of a man who had been subject to attacks of grand mal about thrice weekly, and who had been free from attacks so far for six weeks since receiving his refractive correction, with the exception of a slight seizure on the night of the day when he first wore the glasses. Twenty-two years previous he had been unconscious for several days after being struck with lightning. There had been attacks of vertigo for some time, after which no trouble was experienced till four years ago, when the vertigo reappeared, occurring about once a month for a year. Later he fell on the street with the attacks of vertigo, and still later symptoms of petit mal appeared, to be followed by the liability to complete epileptic fits. The eye-grounds were normal, and the correction

was about +1.25 D. sph. with +0.75 D. cy. with the rule in each eye. The patient's mentality appeared to be normal.

### **Optometric Propaganda Combined with House to House Advertising.**

Dr. Edward Jackson called attention to an advertising circular which was being left from house to house in Denver by a local firm of opticians. With the circular was left also a pamphlet issued by the American Optical Association, entitled "The Conservation of Vision and Modern Optometry," which repeatedly laid stress upon the claim of modern optometry to accurately correct optically defective eyesight without the use of drugs. The pamphlet contained a number of quotations from leading American ophthalmologists; and its arguments were presented under such headings as the following: "The use of drops is the optical novice's method," "The use of drops must be abandoned," "Optics is not taught in any American medical college," and "One ophthalmologist in a hundred knows how to prescribe accurate glasses."

ELLETT O. SISSON,

Secretary.

### **CHICAGO OPHTHALMOLOGICAL SOCIETY.**

A regular meeting was held February 19, 1912, with the President, Dr. Thomas Faith in the chair. The following program was presented:

#### **A Case of Orbital Dermoid.**

Dr. George F. Suker presented a case of Orbital Dermoid in a baby of four months, whose mother had noticed a few days after its birth a small pinpoint elevation on the upper right brow at the angle. A physician lanced it; it evacuated itself; filled again, and was again lanced fourteen days afterward. Dr. Suker saw the baby at this time at the request of Dr. Hultgen. On probing, he found a sinus leading downward toward the external orbital angle and then passing along the upper lid toward the internal canthus. He removed several hairs from the depth of the tract. He laid the sinus open, retracted the upper portion of the lid, and worked subcutaneously toward the inner canthus, removing a large, dense, firm cicatricial, sac-like tumor, filled with caseous material and some hard substance. He then passed the probe backward toward the sphen-

oidal fissure, outlining some more tumor mass and cleared out the tract. The tumor had penetrated the levator palpebrus muscle, destroyed the superior and external recti and the oblique muscles. All went well for about three weeks, when a swelling again appeared and a discharge came from a sinus in the upper retro-tarsal fold. He made the second incision directly over the eyebrow, extending from angle to angle, retracted the upper lid downward and laid bare the orbital wall above, going back to the sphenoid fissure and taking out everything except the nerve. He found one or two small sacs which contained dermoid material. He exercised the retro-tarsal sinus, did not irrigate or pack the wound, but closed it. The tumor involved the lacrimal gland, it also was removed. The globe is fixed downward. The iris reacts to light, and the nerve-head is intact. The wound is still discharging and further procedures are under consideration.

Microscopic sections of the mass by Dr. Hultgen disclose cartilage, sweat and sebaceous glands, and hair follicles. The question is, is it a dermoid or a teratoid? If the latter, it is to an extent a fetus in fetu. The tumor had worked itself through the periosteum and began to erode the orbital wall at several points.

*DISCUSSION.* Dr. Thomas Faith suggested that if the discharging sinus did not contain bacteria, it might be well to fill it with bismuth paste, providing its limits are known and that the paste would not press on the optic nerve.

#### **A Case of Rupture of Sclera.**

Dr. M. H. Lebensohn presented a man, 58 years old, who slipped while shoveling coal, striking lower eyelid of left eye on the edge of the coal car. He became blind at once, and there was much discoloration of the eyelids, but no swelling except a protrusion on globe at upper and inner limbus. The protruding mass was clear, but its contents could not be determined. From the shape and firmness it looked like the lens and vitreous. The only treatment instituted was a pressure bandage and strict antiseptic measures. Enucleation is indicated, as vision is absent. Patient does not complain of pain.

#### **Penetrating Wound of Sclera.**

Dr. M. H. Lebensohn presented a boy, eight years old, who was stabbed in the right eye with a knife on January 23. The knife entered the upper lid and passed downward into the

sclera, the vitreous protruding from the wound. Vision was *nil*. A pressure bandage was applied for three or four days, and when there was no evidence of infection the wound in the sclera was sutured. It healed promptly and vision is now fingers at three feet. The fundus shows where the knife passed through. There are opacities in the lens.

### A Case of Sub-Hyaloid Hemorrhage.

Dr. H. W. Woodruff reported a case of Sub-Hyaloid Hemorrhage. The following is the report of a case seen by Dr. H. W. Woodruff in consultation with Dr. A. W. Lloyd of Hammond, Indiana. The history, as taken by Dr. Lloyd, is as follows:

"Patient Mr. S. T., aged 38 years, policeman, was first examined January 15, 1912. Two days before, about 11 a. m., while shaving he noticed he was blind in the right eye. Subjective symptoms other than the loss of vision were absent. An ophthalmoscopic examination showed a large hemorrhage circular in outline in the macular region with well defined edges except at the temporal margin where it gradually faded off into the surrounding fundus. On the opposite side the hemorrhage covered a small portion of the disc and in this situation the line of demarkation was particularly well marked. He could see a light at 10 inches, the light appearing red. No history of lues or other infectious diseases or of the cardiovascular system. Urinalysis and tuberculin tests negative. The patient was treated for a time by rest in bed with hot applications. Potassium Iodid and Mag. Sulph. A gradual improvement took place until now the patient can count fingers at one foot."

The interest in these peculiar effusions centers around their rarity, the sudden and complete loss of central vision and the possibility of complete absorption with no damage to retina or vitreous. Hotz writing in 1893 reports three cases. That being the number he had seen in 20 years of practice. All of them recovered normal vision. The cause of one was ascribed to menstrual disorder. Another to a cough and the third could not be explained. One patient died from apoplexy one year later. Dr. Hotz also referred to cases reported by Dr. Haab in which the hemorrhage was in one case on the nasal side of the disc, in another below the disc. The majority of them, however, were in the macular region.

**DISCUSSION.** Dr. Oscar Dodd said he had a similar case occurring in a young lady, about twenty, after the ingestion of



santonin for vermifuge purposes. Similar cases have been recorded in the literature. In this case there was a large hemorrhage involving the same area as in Dr. Woodruff's case, and vision was restored practically to normal.

Dr. Thomas Faith cited the case of a man who was injured in one eye a year ago, and had what he at first considered a subhyaloid hemorrhage. The patient had an absolute blind spot, but after several weeks the shape of the hemorrhage did not change by gravity, as is the case with subhyaloid hemorrhage. The eyeball was not ruptured and from external appearances, was not injured. After a month the hemorrhage began to absorb around the margins. Later there appeared a little dark outline in the chorioid. After the hemorrhage had been completely absorbed it showed that there had been an injury which ruptured one of the chorioidal vessels, and the hemorrhage ensued, which from its location made it impossible to see whether any retinal vessels had been ruptured. There was a complete coloboma in the chorioid, with rupture and a tear across one of the large veins.

Dr. E. J. Gardiner said that Dr. Woodruff need not be discouraged about the "slowness in clearing up," and stated that three or four years ago he had seen a much more extensive subhyaloid hemorrhage, producing nearly complete blindness, clear up after a year and a half. When the patient was last seen, all but the lower portion of the hemorrhage had disappeared. Unfortunately the tissues in the macula region had been so much affected that there was central blindness. The patient was sixty-three years old. He thought that Dr. Woodruff would be justified in giving a relatively favorable prognosis in his case.

Dr. O. Tydings said that several years ago he had a patient, over seventy years old, who had such a hemorrhage. There was little vision in the eye at the time. Subsequently the condition cleared up entirely, but vision was lost.

Dr. David Fiske cited the case of a boy, fourteen years old, who, in September, 1911, suddenly lost sight in his right eye. Vision had previously been normal, except for half a diopter of hypermetropia. There was no history of trauma. The boy was riding on the platform when suddenly vision in his right eye failed. On examination there was found a large hemorrhage in the region of the macula, with no vision, except for light and

hand motion. Vision is much better now, and the hemorrhage is pretty well cleared up. The vitreous is somewhat cloudy, with opacities.

Dr. H. W. Woodruff in closing the discussion said that cases of this kind were comparatively rare. The prognosis, he said, was generally favorable, although in his case the condition is not clearing up as rapidly as it is usually said to do. The hemorrhage has cleared up somewhat and vision has improved, but even after a month absorption is far from being complete.

### **A Case of Interstitial Keratitis.**

Dr. Mortimer Frank reported the case of a young man whom he first saw in September, because of a typical interstitial keratitis. The patient had syphilis five years before; a Wasserman was positive. He was given mixed treatment, and in six weeks the cornea began to clear up. At present there are only a few opacities in the center of the cornea. The two central incisors are slightly notched. There is no erosion of the dentin.

### **Discussion.**

*DISCUSSION.* Dr. E. V. L. Brown suggested that a Wasserman test be made of the patient's father and mother, because in spite of the history the keratitis might be a congenital condition.

Dr. Thomas Faith thought these cases nearly all congenital. He has never seen but two or three acquired cases of interstitial keratitis.

Dr. H. W. Woodruff also regarded it as a case of congenital interstitial keratitis and would not consider the Wasserman reaction or the history, because he thought the patient's facies indicated an inherited disease. The teeth and the angles of the mouth, he thought, were characteristic of inherited syphilis.

Dr. Oscar Dodd would not disregard the possibility of acquired syphilitic interstitial keratitis, because he has seen two cases, before the Wasserman test was in use, in which there were absolutely no signs of hereditary syphilis, but the history of acquired syphilis was positive. These cases, he said, are not similar in appearance to the ordinary cases of interstitial keratitis. They are apt not to begin at the periphery, extending inward, but begin in spots. Dr. Loring, he said, presented two patients to the Society some years ago who gave the same history. They also were different in appearance and cleared up under treatment.

Dr. George F. Suker looked up the literature of the subject

not long ago, and failed to find a single case reported in which there were no some of the characteristic markings in the teeth. If any teeth show these markings, the permanent teeth are the ones. It is not necessary to have the incisors marked; in fact, the molars are more apt to show a characteristic marking. Instead of having the four cusps covered by enamel, the enamel is absent and the surface of the tooth shows dentin pegs, which in time are ground flat. Where the cusps should be the dentin proliferates. These are the so-called Fournier teeth. It is not necessary to have peg teeth or separated teeth or notched teeth to determine the question of inherited syphilis. The markings of the first permanent molar are always present. In no case of interstitial keratitis which he has seen were they absent.

Dr. H. S. Gradle suggested that the luetic reaction of guchi might prove of value in this case. It is negative in the primary and early secondary stages, but is positive in the late secondary and tertiary stage in from seventy five to eighty per cent. of cases.

Dr. Mortimer Frank in closing the discussion stated that inasmuch as the young man had the initial lesion of syphilis and the keratitis followed, he considered it very likely a case of acquired and not congenital syphilis.

#### **A Case of Epithelioma of the Lid.**

Dr. Oscar Dodd presented a patient who had epithelioma of the lower lid, which he removed, securing very good results. The tumor involved about one third of the lid, and was about one centimeter in depth. He removed the lid for about twelve millimeters lengthwise and three or four millimeters sideways; loosened the conjunctiva and removed a "V"-shaped piece of skin. He then made an incision in the skin from the external canthus of the eye, cut the tendon of the lid, brought the temporal part of lid over, and sutured it, making a skin flap to cover the defect. The lid at the present time is soft and pliable, and acts as well as before.

**DISCUSSION.** Dr. George F. Suker referred to a case of melanosarcoma of the lower lid in a child, eight years of age. He did the same operation, but in order not to have the upper lid drop down over the flap angle, he fixed the edge directly into the external canthal wound. He believes that the sliding operation gives a much better result than any other.

Dr. Oscar Dodd in closing the discussion said that he had

failed to find any description of the operation he had carried cut in any of the text books.

### **A Case of Tubercle of the Choroid.**

Dr. Charles C. Clement (by invitation) presented a patient, a male, age seventeen, Swedish descent, stenographer, who came to the Illinois Charitable Eye and Ear Infirmary about five months ago complaining of failing vision in the right eye of about three weeks duration. Family and childhood history negative. No recent temperature, cough or loss of weight. No specific history. The present trouble came on insidiously and without pain, failing vision being the only symptom. At the time of admission it was 20/70 R. E. and 20/20 in L. E.

In the affected eye there was slight dilatation of the pupil, normal tension, slightly deepened anterior chamber, cloudiness of the aqueous, very slight pericorneal injection, and a precipitate of fine dots on the posterior surface of the cornea. Opacities in the vitreous somewhat obscured the details of the fundus but a round yellowish-white spot somewhat smaller than the disc could be seen situated above the disc and to the temporal side, at about 11 o'clock. It appeared to be slightly elevated and at that time its borders shaded gradually into the surrounding fundus. Since that time degenerative changes have evidently taken place and a rose-colored border has appeared around the lesion. Urinalysis was negative. Wasserman test was not made. Von Pirquet cutaneous test was positive. Subcutaneous test with old tuberculin was positive. He has been given gradually increasing doses of tuberculin T. R. under which he has shown slow but constant improvement. The cornea and vitreous have cleared to a considerable extent, his vision now being 20/40 in the affected eye. He was recently examined at the Rush Medical College and no evidence of tuberculosis, other than that in his eye, was detected.

### **Discussion.**

*DISCUSSION.* Dr. Mortimer Frank had seen quite a number of cases of tubercle of the chorioid, because of the large number of children with tubercular meningitis who are brought to the Michael Reese Hospital. Unfortunately, these children were not seen by him until shortly before death, because the ophthalmologist is not called in until death is imminent. He has seen one case in a man eighteen years old which terminated fatally. In all the cases the tubercle bacillus is found in the spinal fluid, and he thinks that the bacilli should be looked for

in all cases, especially if they are known to be cases of tubercular meningitis.

Dr. Oscar Dodd, whose patient Dr. Clement reported, said that the man had been receiving progressive doses of tuberculin and that there is considerable improvement in his condition. He called attention to two kinds of tubercular chorioiditis, one kind occurring in cases of miliary tuberculosis, where the presence of tubercles in the chorioid are a sign of approaching death. The cases of solitary tubercles are more rare, and usually go on to complete healing. Usually there are no other symptoms of tuberculosis to be found. A positive tuberculin reaction is obtained, however. The patient recovers, although sometimes vision is affected. In one of his cases the tubercle was in the macular region, and central vision was destroyed.

Dr. Thomas Faith asked whether there was any change in the acuity of vision after the tuberculin test.

Dr. Charles C. Clement in closing the discussion stated there seemed to be no local reaction to the tuberculin given for diagnosis. These cases, he thought, are more common than is usually supposed. They ordinarily escape observation because they usually appear as terminal manifestations of general miliary tuberculosis in which any eye symptoms are so overshadowed by the grave general condition an oculist is not consulted and even if he should be called the tubercles may be situated so peripherally as to escape observation with the ophthalmoscope and be found only at the post-mortem.

### **A Special Form of Proliferating Chorioiditis.**

Dr. E. V. L. Brown reported a special form of proliferating chorioiditis occurring in a man of fifty-eight years, who was struck in the right eye thirty-five years previously by molten metal and had been blind ever since. The eye was removed for second glaucoma following eight weeks of severe pain. The fellow eye has never been inflamed.

The sections show a round, epithelioid and giant cell infiltration in the chorioidea; the veins are thrombosed and plugged with cells and most of them completely destroyed. Older areas are almost exclusively made up of epithelioid cell proliferation. No new vessels are found. This infiltration extends over the edge of the disc into and fills up a deep glaucomatous excavation, goes through the lamina cribrosa and forms a large retrolamellar round-cell node. This node invades and fills the



trunk of the central vein. The disc is swollen far forward. The cells also invade the retina near the disc. Some obliterative endovasculitis of the retinal vessels is present. The anterior part of the eye shows a recent organized plastic uveitis and a very recent suppurative endophthalmitis. Huge areas of chorioideal pigment epithelial cell proliferation are found in front of the equator.

The unusual feature of the case is a necrosis of the infiltration in the chorioidea, often in all layers, anterior to the equator, and of the adjacent Dahlen epithelial nodes which, of course, depend upon the chorioidea for nutrition; the tissues over the disc are also necrotic.

B. holds the condition is not sympathetic infiltration because (1) the other eye was not involved, (2) the enucleated eye was never penetrated, (3) necrosis of the infiltration is present.

The process does not in any way closely resemble tuberculosis or syphilis, and stain for organisms are negative.

A very similar case has been reported by Fuchs (*Arch. f. Oph.* page 437), but this eye had been opened and the other eye was not inflamed. Fuchs held the condition to be a peculiar form of proliferating choroiditis about which nothing further is known than that it is a finding similar to sympathetic infiltration but with necrosis. The present case emphasizes the great tendency to invade and thrombose the veins, and shows that it can occur without penetrating injury.

RICHARD J. TIVNEN, Secretary.

## WILLS HOSPITAL—OPHTHALMIC SOCIETY.

MEETING OF APRIL 1, 1912.

DR. S. LEWIS ZEIGLER, CHAIRMAN.

### Extract of the Supra-renal Gland in the Treatment of Acute Corneal Staphyloma.

Dr. Paul J. Pontius read a paper on "Extract of the Supra-renal Gland in the Treatment of Acute Staphyloma of the Cornea," and related six cases successfully treated by the agent. Dr. Sajous, the eminent authority on the physiological action of the glandular extracts, was quoted as saying that the influence of the extract of the supra-renal gland is explained by the great rise of metabolic activity it engenders directly in the muscular elements of the arterioles that supply the cornea and sclera. The calibre of the arterioles is reduced by contraction of their muscular coat, and the volume of blood plasma

admitted to the ocular structures is greatly reduced. The veins which carry off the blood from these structures are not influenced, however, and the intra-ocular tension is relieved merely because more fluid leaves the eye than is supplied by the arterioles. On account of this physiological action, Dr. Pontius was induced to use it in acute staphyloma of the cornea, so often seen following ulcerative keratitis, instilling a 1-1000 solution three times daily, with very gratifying results. He concluded that the extract of the supra-renal gland has no specific action on the corneal tissue, but it reduces acute staphyloma of the cornea by lowering intra-ocular tension through a constriction of the arterioles and the relief of pressure in the lymph channels.

Dr. Ziegler thought the use of adrenalin, as suggested by Dr. Pontius, marked an important addition to our therapeutic armamentarium. He detailed several cases in which he had used this treatment with very marked success. He had in addition to the adrenalin used a ii-iv gr.-oz. alum solution. The staphyloma had not only greatly improved but the cornea had cleared to a marked extent.

Dr. Risley had seen a number of patients with perforating ulcers of the cornea during the past year who had been greatly benefited by the frequent instillation of a solution of adrenalin chloride 1-5000, after the more usual methods of treatment had proved unavailing.

#### **Traumatic Cataract—Copper Scales in the Vitreous Chamber**

Dr. Samuel D. Risley presented for study a young man who, as the result of the explosion of a box of dynamite caps, had lost the right eye and had traumatic cataract with a firm adhesion of the iris to the cornea at the lower nasal limbus. An X-ray study by Dr. Sweet had shown two metallic fragments, presumably copper, situated on or near the posterior capsule of the lens. The inability of the patient to fix his gaze upon any point made the problem of localization difficult and uncertain. Dr. Risley presented the case as a text for remarks upon the danger from the presence in the vitreous chamber of metals like copper, zinc, brass or lead, because of the rapid chemical changes which occurred and the irritating quality of the resulting metallic salts.

#### **The Zeiss-Teleater Loupe.**

Dr. Ziegler exhibited the Zeiss-Teleater Loupe. This is the

ordinary theatre prism glass of 3X to which has been attached a loupe which forms a practical corneal microscope. The combination gives a flat field and can be focused so that the observer can stand one foot from the patient.

Dr. Risley presented also for study a large group of patients with mature, incipient and immature cataract of one or both eyes, all of which had posterior polar opacities, floating vitreous webs and choroiditis. Two of the group were workers in molten metals in industrial establishments, while the other cases were all victims of cardiovascular disease, with high blood pressure, albuminuria, diabetes or rheumatism. He pointed out the need for more or less prolonged general treatment for both the local and general conditions before any operative procedure could be wisely undertaken.

Dr. S. Lewis Ziegler showed a case illustrating Dr. Risley's remarks concerning metallic bodies in the vitreous chamber. He spoke of two cases in which he had removed copper particles from the vitreous with forceps.

#### **Tubercle of the Choroid—Healed by Tuberculin.**

Dr. William Campbell Posey related the history of a patient who had applied for treatment because of an inflammatory condition of the right eye of four weeks' standing. Examination revealed in addition to all the signs of an acute uveitis, a distinct bulging in the sclera about the size of a small pea, located about 5 mm. posterior to the limbus, at a point midway between the inferior and internal rectus muscles. Vision equaled fingers at 1 metre. Judging that the swelling in the ciliary region to be either tubercular or gummatous, the patient was admitted to the hospital and a positive reaction obtained after the internal administration of tuberculin. Following the therapeutic use of tuberculin and the usual local treatment for uveitis, there was a rapid subsidence of the local symptoms, so that the patient was able to leave the hospital at the end of three months with a vision of 6/30. By this time the media had cleared sufficiently to disclose the presence of a large white, rounded mass just posterior to the lens in the inner lower part of the anterior segment of the globe. The patient is now being treated as an out-patient, and though the vitreous is still somewhat hazy, uncorrected vision equals 6/35.

Dr. Ziegler said that the internists do not have the degree of confidence in the therapeutic use of tuberculin as do the

ophthalmologists. He had treated at least thirty cases with tuberculin during the past five years, and not only was there a complete cure in every case, but in only one was there a recurrence. Dr. Ziegler considered it the only proper form of treatment in these cases.

#### **Exophthalmos from Adenoids.**

Dr. Posey exhibited a child with a mild degree of exophthalmos in both eyes, which doubtless was occasioned by shallow orbits, in whom the prominence of the globes had been greatly increased by the presence of adenoids, the proptosis recovering to its normal degree after the removal of the growths at the Children's Hospital. Dr. Posey said that while this was the first case of the kind which he had seen, the literature contained many such, and cited cases reported by Holz, Spitler, and Hack. He also referred to a case reported by Batten, where the orbital involvement appeared after an attack of tonsillitis. Dr. Posey also pointed out the connection which existed in a number of cases in the literature with Graves disease, and referred in particular to a girl of 17 years reported by Hack, in whom the exophthalmos had existed since early childhood. Examination revealed a marked hyperplasia of the erectile tissue of the middle and lower turbinates. The lower turbinates were cauterized and the following day the exophthalmos had nearly disappeared. The Dalrymple sign and the Graefe sign which had been present, disappeared. Also the nervous cardiac palpitation, and the size of the thyroid diminished, and a slight myopia which had been present before the nasal operation disappeared.

The exophthalmos had preceded all the other signs of Graves disease for some years, and Hack thought that the excitation of certain portions of the peripheral sympathetic by the swollen tissues of the nose had occasioned the other symptoms, all being, according to him, of the nature of a reflex neurosis. He attributed the exophthalmos to hyperaemia of the orbital vessels, caused by reflex dilation of their walls and to a marked turgesence of the retrobulbar fat, which he said Michel had already referred to as cavernous tissue.

#### **Exophthalmos from Mucocoele of the Frontal Sinus.**

Dr. Posey exhibited a woman with a mucocoele of the frontal sinus, which had occasioned displacement of the left globe and which he had drained with but little resultant deformity by Arnold Knapp's method. The patient, a woman of 52 years of

age, had suffered no inconvenience from the encroachment of the frontal cells upon the orbit other than muscular asthenopia. The globe was unaffected, save for a faint haze in the anterior portion of the vitreous. Corrected vision was normal. The contents of the cells were excavated through an incision in the upper angle of the orbit, care being taken to avoid injury to the pulley of the superior oblique muscle. With the assistance of Dr. G. B. Wood, rhinologist to the Howard Hospital, a free opening was made into the floor of the frontal cells, and thorough drainage into the nose by the insertion of a rubber drainage tube of fair sized calibre through the ethmoidal cells. Dr. Posey laid stress upon the closure of the orbital wound at the time of the operation and the maintenance of a large hole for drainage through the roof of the nose.

Dr. Risley noted with pleasure Dr. Posey's commendation of opening the frontal sinus and ethmoid cells under the orbital ridge at the nasal angle of the orbit. He had claimed for this method many years ago that it caused less deformity from the resulting scar and gave more ready access to the nostril by way of the anterior ethmoidal cells for purpose of drainage. He thought that mucocele of the frontal sinus not infrequently simulated malignant disease of the orbit, and recalled a case in his service at the Wills Hospital in which several of his colleagues were of the opinion that the extreme exophthalmos was due to a malignant growth in the orbit and advised exenteration. Fortunately before enucleating the eye, which had V-6 xii., he made an explorative incision under the upper eyelid and found the exophthalmos due to the accumulation of an enormous quantity of muco-purulent material behind the ball, which had escaped through the necrotic floor of the frontal sinus.

### **Congenital Dislocation of the Lens.**

Dr. Posey exhibited a child from whom he had removed a dislocated lens from the vitreous a week previously. Both lenses had been subluxated congenitally, but had dropped back into the vitreous after an attempt at needling by a colleague. Referring to the ease with which the lens had come away with the first gush of vitreous, Dr. Posey said that the elder Knapp had years ago maintained that he had never failed to remove a dislocated lens from the vitreous in such cases by simple compression of the lower half of the globe by the fingers through the approximated lid.



**Rodent Ulcer of the Orbit.**

A case of rodent ulcer of the orbit which had invaded the frontal and ethmoidal cells, was exhibited by Dr. Posey, who said that it was his intention to eradicate the disease as far as possible with the knife, as he had but little confidence in the employment of the X-ray or cauterizing agents in the treatment of this class of cases.

J. MILTON GRISCOM, M. D.,

*Secretary.*

**THE OPHTHALMOLOGICAL SOCIETY OF THE  
UNITED KINGDOM.**

MEETING OF THURSDAY, MARCH 14TH.

J. B. LAWFORD, PRESIDENT, IN THE CHAIR.

The following card specimens were shown and discussed: Mr. Cruise, A Case of Tuberculosis of the Conjunctiva; (2) Scotometer for Testing Central Colour Vision. Mr. Wray, A Case of Sub-Retinal Cyst. Mr. Grimsdale, Acquired Hypermetropia with Rupture of Choroid. Mr. G. Coats, Pigmented Cyst Lying Free in the Anterior Chamber. Mr. Herbert said he saw a similar case to Mr. Coats' in Bombay, but there was no deposit on the lens capsule. Mr. Cargill showed a case of Osteoma of the Frontal Sinus. Mr. Cunningham showed a case of Episcleral Nodule, probably tuberculous; Mr. Bishop Harman exhibited a case of Guttate Iritis. Mr. Herbert read a paper entitled A Distinctive Conjunctival Papule. He described a somewhat prominent defined painless papular swelling found on the inter-palpebral ocular conjunctiva fairly commonly in India, and apparently rarely in Europe. It occurred in adults, chiefly in males, and most often at the inner side of the cornea. It was generally of a pale pink colour, paler than the immediately surrounding injected conjunctiva, and there were a few enlarged blood vessels running to it. It might stain feebly with fluorescein. It might last two or three weeks only, or considerably longer. Its chief histological features were great epithelial proliferation, more or less inflammatory infiltration, and elastic tissue degenerative changes. In the more active cases the epithelial cells were much enlarged, and multi-nuclear epithelial giant cells were to be found. Where epithelial down growths were unable to form, owing to firm supporting fibrous tissue, the nutrition of the epithelial mass was served by the penetration of thin-walled blood vessels into it. It was doubtful whether the elastic

tissue changes were an essential feature, since they were well developed in the otherwise normal neighbouring conjunctiva. They were the changes which had been described in pingueculae. Some of the broken down elastic tissue was carried by the lymph stream into the epithelium, more particularly in the more inflammatory cases. Some of the degenerate material was taken up by the epithelial cells, and thus disposed of. Its presence appeared to stimulate the multiplication of the cells. Portions of it, by causing localized proliferation, led to the formation of "cell nests." This observation should be tested as to its possible application to epithelial pearls in other affections, as in epithelioma of the skin. Much of the hyalin degenerate elastic material no longer stained specifically, but showed some newly acquired selective staining affinities, which aided in its recognition. In one case particles of broken down tissue were also found in the epithelium.

Mr. Worth read a paper entitled, "Operative Treatment of Conical Cornea." He described a new operation for conical cornea. He said that in most cases which needed operation there was a very high degree of myopic astigmatism, sometimes as much as 15 or 20 diopters, with little spherical error, and even with the most accurate combination of correcting lenses, vision was usually very poor. At the apex of the cone there was usually what looked like an opacity, but examination with oblique illumination and a loupe often shewed this appearance to be merely a refraction effect. The majority of surgeons operated upon conical cornea by applying the actual cautery to the apex either with or without complete perforation. Some surgeons say that to operate without perforation is to produce a large opacity and small effect upon the refraction. Those who do not burn a hole completely through the cornea say that the presence for several days of a sloughy fistulous opening into the anterior chamber would be a source of grave danger to the eye. The instruments required for Mr. Worth's operation were a platinum thermo-cautery and spirit lamp, and a broad needle and spatula for tapping the anterior chamber. The platinum cautery had a flat surface of an elongated oval shape. The eye was cocaineized and a drop of eserine instilled. A spot was selected on the cornea in the meridian of greatest curvature nearly midway between the summit and margin of the cornea—but very slightly nearer the summit. The cautery was heated in the

spirit lamp and held over the eye until it almost ceased to glow in daylight. It was then applied to the cornea at the selected spot with its long axis at right angles to the meridian of greatest curvature. It should only be left in contact with the cornea for an instant, two or three applications were usually required, the cautery being heated each time. A cavity should be made about 4 mm. long and 2 mm. wide, with steep edges and extending nearly down to Descemet's membrane, but very great care should be taken to avoid opening the anterior chamber. Descemet's membrane appeared to be more resistant to burning than the substance of the cornea, or perhaps the aqueous protected it in the same way as water protected a tin kettle. With care the cauterization could be continued until the membrane was seen bulging at the bottom of the wound. Then the anterior chamber was tapped near its periphery and the aqueous evacuated. The anterior chamber was tapped near its periphery on each of the following three or four days and after that on alternate days until the ulcer had healed. The main points of the operation were the dangers of a communication between the wound and the interior of the eye were avoided; the frequent evacuation of aqueous promoted rapid healing of the wound and greatly increased the effect of the operation; by concentrating the effect of the operation chiefly upon one meridian and so reducing the myopic astigmatism, better visual results were obtained than could otherwise be hoped for; no subsequent iridectomy was required. Mr. Worth said that the operation was so safe and satisfactory that he would not hesitate to recommend it in a case of non-progressive myopic astigmatism of extremely high degree. The paper was discussed by Mr. Ernest Clarke, Mr. Wray, Sir Anderson Crichtett, Major Alexander, Mr. Arnold Lawson, and Mr. Harrison Butler. Mr. Wray, in his remarks, expressed surprise at hearing Mr. Worth say that so many cases of the kind were corrected by means of minus cylinders. The last seven cases he (the speaker) had had were corrected by *plus* cylinders. Sir Anderson Crichtett's observations consisted of a defense of his operation by means of the galvano-cautery.

Mr. W. H. Brailey read a contribution entitled: "A New Cell Proliferant." He called attention to a new drug named Allantoin which he termed a new cell proliferant. Its action was not that of an antiseptic; so far from that being the case it actually encouraged the growth of organisms, but is great

use was that it encouraged the proliferation of the cells of the tissue. He mentioned the case of a small corneal ulcer which, after cauterizing and the application of various remedies, did not get well. Drops of Allantoin quickly caused a marked improvement. He mentioned several similar cases and explained the beneficial action of the drug by its causing the cornea to receive extra nourishment. He considered that the drug was well worth a trial in all cases of long-standing keratitis and possibly scleritis.

Mr. Zorab read a paper entitled: "The Relief of Tension in Chronic Glaucoma; a Preliminary Report on a New Operation." After briefly reviewing the existing operations he indicated that the guiding principle in each was drainage of the interior of the globe. He then went on to describe his own procedure—based on the same guiding principle. He described two methods of which the second was, in his opinion, the better. Originally, he passed a threaded needle sub-conjunctivally into the anterior chamber, piercing the sclerotic coat at the angle. The needle was then brought out at a corresponding point through the angle, and out again sub-conjunctivally. The ends of the silk were cut short and a little manipulation ensured their being covered by conjunctiva. He found, however, that the conjunctiva was very frequently torn by the fixation forceps, and also there was some risk of pricking the iris and lens capsule with the point of the needle. Acting on the suggestion of Mr. J. F. Bullar, he modified the operation thus: A large flap of conjunctiva was raised—at the upper part of globe, for choice—leaving a crescentic attachment along the limbus. A small incision was then made under this flap into the anterior chamber. A piece of sterile silk thread, about  $\frac{1}{3}$  inch long was doubled on itself, and the loop was pushed gently through the sclerotic incision into the chamber. The conjunctival flap was then replaced and stitched in a couple of places, great care being taken to see that the distal ends of the bight of silk did not come near the margin of the conjunctival incision. Mr. Zorab claimed for this procedure that it is quite devoid of manipulative risk, that it established efficient drainage, which promised to be permanent, and that it was simple to perform. The only danger, in his opinion, was from sepsis, but he did not regard this as being any greater than the other operations involving opening the eye-ball. The greatest emphasis was laid on ensuring a complete covering

of the silk by healthy conjunctiva. As the oldest case only dated back to July, 1911, he was careful to state that the operation was only on trial, but he was firmly convinced that it held out good promise. He had so far restricted it to cases of chronic glaucoma, as acute cases did well with iridectomy. He concluded his paper with notes of the cases already operated on.

Mr. Stephen Mayou mentioned some cases on which he had tried a similar procedure, somewhat before Mr. Zorab. Mr. Zorab replied.

C. D. MARSHALL, F. R. C. S.

## MEETING OF THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

MARCH 14, 1912.

DR. WENDELL REBER IN THE CHAIR.

### Optic Neuritis and Left Nerve Palsy of Specific Origin.

Dr. John H. W. Rhein.—Woman of 50, with headache and failing vision dating from January 2, 1911. Paresis of the left external rectus and moderate optic neuritis which was more marked on the left side. Face and hands very large, suggesting acromegally. There was no paralysis of any of the cranial nerves. Station was good and gait normal. The grasps were equal and good and there was no evidence of any paralysis of motion or sensation. Slight exophthalmus of the left eye; left palpebral fissure wider than the right.

Positive Wassermann and von Pirquet. Skiagraph negative. Salvarsan injection on December 22, 1911, and gradual improvement in the paralysis of the external rectus began the next day.

A tumor of the brain was at first suspected in this case. The grossness of the face and hands suggested acromegally, but this was neither confirmed by the skiagraph nor the subsequent study of the case, as the patient was quite positive that the face and hands had always been large and that there had been no perceptible increase in size of recent origin.

In view of the presence of a positive Wassermann reaction the case was looked upon as one of syphilitic meningitis, and the improvement in the paralysis of the external rectus muscle following the Salvarsan injection was looked upon as confirmatory evidence of this diagnosis.

Dr. Rhein also presented two other cases of optic atrophy.

**DISCUSSION.** Dr. William Campbell Posey considered the first case to be one of cerebro-spinal syphilis. Both optic nerves



were considerably inflamed, the left being the more so. The paralysis of the external rectus was complete. There had been no inflammation of the iris or ciliary body; this was unusual in cerebro-spinal syphilis. He was much interested in the third case reported by Dr. Rhein and thought it was probably one of hereditary optic nerve atrophy. Some years ago he had observed this affection in three generations of the same family, the patients being a young man of 21 years of age, an uncle about 45 years of age and a great uncle about 65 years of age. All three had a vision in each eye of about 3/60, the center of the field of vision being occupied by a large central scotoma. Owing to the appearance of the atrophy at a period when the sutures of the skull were becoming firmly ossified, he had advanced the theory some years ago that the retrobulbar neuritis occasioning blindness could be accounted for by a preternaturally small optic foramina, in consequence of some anomaly in the development of the sphenoid bone. To substantiate this theory, Dr. Posey said he had taken measurements of the skulls of the patients before mentioned, which seemed to indicate some faulty developments of the skull. It is the general belief that the disease is transmitted through the female side of affected families but that only the male members develop the atrophy.

Dr. Zentmayer said that hereditary optic atrophy certainly did appear in female members of a family but not in a very large per cent.

Dr. D. Forest Harbridge, referring to the case of Leber's atrophy presented by Dr. Rhein, added the following history:

William and David B., ages respectively 22 and 24, with good personal history. The younger brother first developed symptoms of failing vision with a positive scotoma early in November, 1910. The older brother early in May, 1911. When first seen by Dr. Harbridge early in August, 1911, they presented clearly defined disc outlines. The upper and lower borders slightly hazy, atrophic and decidedly pale to the temporal side. The vessels were moderately reduced. The general character of the fields taken at different intervals, showed a more or less constant concentric reduction with large absolute central scotoma. In one a broken ring zone of functioning retina the balance being lost.

Vision, William, fingers at 6 inches. David 1½/60. Wassermann negative. Both were treated actively in the Chester Hospi-

tal for six months. Vision improved to 3/60, fields remaining practically the same. Immediately following the use of nitrate of amyl there was no appreciable difference in the size of the vessels. During their stay in the hospital William developed a severe attack of typhoid fever and for two weeks during this period he was absolutely blind.

Dr. Howard F. Pyfer: "We have in Norristown a family with undoubted hereditary optic nerve atrophy. The history of this family has been traced back as far as 1780. The males have inherited the disease through the female side of the family. No females, as far as I am aware, have this disease.

"I have had an opportunity of examining a patient who has become a victim of this disease. He first had edema and congestion going on to gray discoloration of the nerve head and finally the optic atrophy.

"Blindness is not complete in any of these men; but at night, unless they travel along well-known routes they easily become lost."

Dr. Wendell Reber: "I think there are more of these histories than we suspect. There are certain anomalous forms that do not correspond to the type. It may be that when we know more about this disease we shall find that it answers to the law of the Mendelian Theory. The family history is extremely hard to elicit, and often we will be misled by the histories. There is a disposition of the disease to show itself soon after puberty or not until about 45 or 50."

Dr. William Zentmayer spoke on "The Therapeutics of Diseases of the Lacrimal Apparatus."

He advised that in congenital atresia of the lacrymonasal duct a probe be passed through the duct into the nose. Only lately he had seen a dacryocystitis in a child 2½ years old, where the atresia had been left to nature to cure. His attention had been called by Dr. Dewey to an occasional cause of epiphora the result of wearing "shure ons" and similar forms of nose glasses. When the finger pieces are released the lower lid is drawn away from the globe so that the punctum does not lie against the ball. He asked "Shall the treatment of lacrymal obstruction and its sequellae be conservative or radical?" Answering it by saying that in the beginning of the trouble it could not be too conservative, while in the later stages it should be radical. In simple obstruction the entire tract should be syringed out with a mild

astringent lotion by introducing for a very short distance into the canaliculus the end of a fine gold canula. The point should not be sharp, as there is danger of lacerating the tissues and thus allowing the solution to get into the cellular tissue. If this fails to relieve the condition, careful probing is to be tried after clipping up the canaliculus. He uses the Bowman probe, rarely above No. 4. If a fine probe has been used it is better not to follow with syringing because of the danger of orbital cellulitis should any of the solution enter the orbit. The injections of silver solutions is not advised. In the presence of dacryocystitis the same measures are to be tried and only after a thorough trial is extirpation of the sac advised. If a mucocoele has been formed extirpation should be done at once. If an operation that opens the eyeball is contemplated, extirpation may be done for even slight dacryocystitis. In acute dacryocystitis, the abscess should be opened with a free incision carried into the posterior wall of the sac. He considers it unsurgical to introduce lead styles into an abscessed sac in the acute stage. While extirpation of the sac is a very satisfactory operation in pus cases, it should not be done for simple obstruction due to stricture as in quite a considerable percentage of cases there is annoying epiphora for some time following the operation and in a few cases it is permanent, consequently little has been gained by the procedure. However, in one such case a cure was obtained by the use of the actual cautery in the canaliculus. It is of the utmost importance that intra-nasal treatment should be carried out in connection with the treatment of all dise conditions of the lacrymal apparatus, and anti-syphilitic treatment should be added in children.

*DISCUSSION.* Dr. S. D. Risley: "While there is much diversity of view maintained by different ophthalmic surgeons regarding the treatment of this very common affection, my own views as to methods are quite closely in accord with those outlined by Dr. Zentmayer. I have always been an advocate of conservative methods in the treatment of disease of the lacrymal drainage system, and still believe that much of its reputation for chronicity depends upon faulty and violent procedures for its relief."

For many years past, he had employed probes only in exceptional cases and rarely found it necessary to extirpate the lacrymal sac. In the minor cases of partial retention of the

tears, he had found that to dilate the lower punctum without violence, after the instillation of cocaine, sufficient to admit the point of the fine gold canula of the lacrymal syringe he had devised; then the sac could be thoroughly irrigated with any desired solution. If the solution did not flow to the nostril a few drops of a solution of cocaine and adrenal chloride, carried into the sac and allowed to remain there a few moments, would contract the tissues and permit the passage of fluids into the nostrils, without the passage of a probe. A cure in a very large percentage of cases could in a short time be effected by this simple procedure. If fluids could not be made to pass through the duct in this way, he thought the lower canaliculus should be carefully slit up to, or near where the canaliculus enters the sac, but not into the sac. A small probe, not larger than a number 3 or 4 Bowman could then be carefully carried into the sac and thence to the entrance of the nasal duct and through it into the nose. There is always danger in this procedure lest the inflamed and more or less friable mucous lining of the irregular bony walls of the duct be torn or pierced. He thought this was far more likely to occur with a number 1 probe of the Bowman series than with a number 3 or 4. After the safe passage of the probe the walls of the duct should then be irrigated with some mild unirritating alkaline wash. If pus were present in the sac, after thorough washing, he had found weak solutions of silver nitrate, not stronger than 1 grain to the ounce, of great service in disinfecting the sac and duct. It should not be allowed to remain in the closed sac very long, but after a moment or two carefully washed away or neutralized by the alkaline wash. The nostrils in every case of lacrymal disease should receive careful attention. In chronic dacryocystitis, in cases with thickening of the sac walls, where there is accumulations of a glairy-mucoid discharge, he had found frequent irrigation of the sac with weak solutions of iodine of great benefit. This solution he secured by a few drops of Lugol's solution of iodine in water. He never passed large probes and never used styles, but often in former years when they were so much in vogue at the hands of the general surgeon had occasions to remove them.

Dr. Posey said his treatment followed much the same line as that laid down by Dr. Zentmayer and Dr. Risley. He had, however, relinquished the use of probes for many years, preferring the insertion of styles and the removal of the sac. It was his practice in cases complaining simply of increased lacrima-

tion, to try simple syringing of the lacrimal passages for a time, but if this treatment failed styles were inserted.

He called attention to the importance of properly entering the sac in the performance of Bowman's operation and said that Weber knives with curved tips were to be discarded for those with straight tips. Operators should be careful to see that the lower canaliculus is kept open by permitting the head of the style to rest securely in the sulcus. He removed the style after three or four months and if the laceration still persisted, he then advised the removal of the sac. This latter was his operation of choice also in all cases of mucocoele.

In acute dacryocystitis, he incises the lower canaliculus and puts in a style while the patient is under the general anesthetic, thereby affording not only relief to the conditions excited by the abscess, but also removing its cause. He thought that the style permitted drainage, and in many years of experience with this procedure he had never had but the best results.

He cautioned against syringing out the sac with any but the simplest solutions and said he had once observed optic atrophy arise in the practice of another, from orbital cellulitis set up by washing with a solution of nitrate of silver.

Dr. Reber said that chronic dacryocystitis is generally a very much treated dacryocystitis.

D. FOREST HARBRIDGE, M. D.

Secretary.

## ILLINOIS STATE MEDICAL SOCIETY

PROCEEDINGS OF THE SECTION ON EYE, EAR, NOSE AND THROAT.

CHAIRMAN, DR. W. O. NANCE, CHICAGO; SECRETARY, DR. GEORGE F. SUKER, CHICAGO.

The section met in Springfield, May 22, 1912, under the Chairmanship of Dr. Nance.

### Hemorrhage as a Cause of Blindness.

Dr. C. B. Welton, of Peoria, stated that it fell to his lot to make a cataract operation in the person of an old man who had a moderately advanced Bright's disease. The perception was good; the patient could discern candle light at ten feet. The tension was normal. He had good projection, and a good field. The depth of the anterior chamber was normal;



there was no arcus senilis; the pupil responded to light and atropin. The lens was slightly over ripe. The cellular tissues of the orbit were well filled with fat, which insured no collapse of the cornea. There was some arteriosclerosis, and the blood pressure was 150. The condition was such as we would meet in a large number of old people, and which would ordinarily yield a favorable result. An iridectomy was performed without complication, excepting a small hemorrhage into the anterior chamber. This was removed with the iris forceps, revealing a clear field. The capsule was opened, and the lens extracted, revealing a clear pupil. The patient was requested to remain on the table for half an hour to permit agglutination of the edges of the corneal wound. He was removed to his room with care, and everything was in the highest degree propitious. About midnight he began to suffer pain, called a nurse, who gave him a sedative. On the following morning he continued to suffer, and the eye was examined. It was found that a clot of blood projected out of the corneal wound. The conjunctiva was edematous.

It was decided to give him an anesthetic, and endeavor to remove the clot in the faint hope that there was a possibility of saving the eye. On examination it was found that there was a very large hemorrhage involving the vitreous. There was nothing to do but eviscerate or enucleate. Accordingly, the cornea was removed, and the contents of the eye-ball wiped out with cotton applicators. This procedure revealed a large intact clot which explained the calamity and made it apparent that the catastrophe was in no measure due to the operation, but was caused by an uncontrollable hemorrhage. The accident prompted the suggestion that the vascular tension should be taken in all cases in which increased blood pressure is suspected and such taken to lower the blood pressure and maintain a normal pressure for a sufficient time to permit the healing of the corneal wound to become established.

The two remedies which suggest themselves in a similar condition would be blood-letting and *veratrum viride*. The effect of the former remedy has been rendered apparent to every one who has had considerable experience in nasal surgery.

**DISCUSSION.** Dr. Casey Wood, Chicago, said he remembered one case where he could definitely say that blindness followed the excessive loss of blood. This case occurred in a woman.

forty-five years of age, who had a carcinoma of the stomach, and his investigation of this matter showed that the most marked cases, the cases one felt the surest about, followed hemorrhage either from an ulcer or a malignant disease of some kind. In this case both eyes were affected and optic atrophy was almost total. In the course of several months the case went on to atrophy with the regular contraction of the fields, with disappearance entirely of the color spaces.

With reference to experiments on dogs, he protested against the conclusion of the essayist, saying the dog's eye was entirely different from the human eye. The histology was different, the arrangement of the blood vessels and lymph spaces were entirely different. He thought nine tenths of the experiments on animals were absolutely of no value regarding the eye, so that it seemed to him, if his judgment was correct, that we were thrown back on the great mystery of what really causes blindness from severe loss of blood.

Dr. William L. Ballenger, of Chicago, said the essayist referred to nystagmus as a symptom. There were at least three types of nystagmus, and he would like to know which type was present. It was probably an ocular nystagmus.

Dr. Welton, in closing, said that he tried to get the patient into a hospital, but the patient refused to go. He went to a general diagnostician to ascertain just what the general condition was and he (the patient) suspected some gastric trouble, probably a cancer, but repeated efforts to get him into the hospital for examination failed, so that the speaker could not tell what the general condition was. The fields of this man could not be taken. The man's mind was dull. Paterson reported a case in which the mind was markedly affected. In this man we could get nothing when we attempted to get his field.

As to the kind of nystagmus that was present, he did not know, but expected it was ocular.

#### **Traumatic Dislocation of the Crystalline Lens Without Rupture of the Eye-Ball.**

Dr. C. F. Burkhardt, of Effingham, reported a case and stated that injuries to the eye for all practical purposes might be classified under two classes of divisions: 1. Those penetrating the eye-ball. 2. Those that do not penetrate the eye-ball.

These ocular traumatisms are more numerous than in former years, due to the great number of mechanical inventions, etc.

The clinical pictures resulting from traumatic injury to the eye are practically without number. Owing to the great multiplicity of the conditions resulting from traumatic injuries to the eye, he did not attempt in his paper to present but one of the serious conditions resulting from trauma, namely, the dislocation of the crystalline lens without rupture or penetration of the eye-ball.

This character of injury was usually caused by concussion, that is, by a substance striking the cornea or sclera and bounding off without penetrating; the cornea usually being the point of resistance. The cornea was of such a tenacious and elastic character it could withstand a sufficient blow or force without penetration of its tissue to dislocate the lens completely and even cause the fragmentation of the lens matter, which was true in the case he reported. In cases where there is fragmentation of the lens they are usually the result of injuries from shot striking the cornea without sufficient force to enter.

He had had during the past year one case under his care which he considered of sufficient interest to report the history and treatment of. The patient was eleven years of age, was accidentally shot in the left eye February 25, 1911, while handling an air gun, the muzzle being almost in contact with the eye. He saw the patient a short time after the injury. There was no penetrating wound of the cornea or sclera, only a slight abrasion of the cornea where the shot first struck and glanced off. The examination of the interior of the eye was impossible, as the anterior chamber was filled with blood. Vision was reduced to perception of light. After a few days, when the blood had been absorbed, the lens could be seen completely dislocated. The horizontal axis of the lens pointed directly anteriorly and posteriorly. About half of the lens was above the iris and half below. The lens had a striated appearance which later proved to be due to its fragmentation. There was also a large coloboma of the iris to the nasal side.

Treatment consisted of atropin and the application of cold compresses. After the inflammation had subsided it became a question about the removal of the lens matter, but after consultation it was decided to watch and see if nature would remove the lens matter by absorption, and he was glad to be able to make the statement that at the expiration of eight months after the injury the lens matter had been absorbed. The only trace of the lens that could be now made out was

very tiny shreds in the anterior chamber, which were evidently the unabsorbed parts of the capsule. The coloboma of the iris still existed. The vision without the aid of the lens at the present time was the counting of fingers at ten feet, with a plus ten lens it was 6-20.

**DISCUSSION.** Dr. George F. Suker, of Chicago, said it was rather surprising that subluxation and even dislocation were relatively rare considering the injuries from blows as far as the eye was concerned. He believed in this subluxation and dislocation from injuries of this kind there was an inherent anatomical defect in the suspensory ligament. These injuries always entailed more or less damage to the ciliary bodies and processes because of the tension of the blow. It was certainly dangerous to immediately enter an eye that had a dislocated lens for the removal of the same, be it in the anterior chamber or the vitreous chamber. It was far better to abide one's time and let the first surgical reaction from the trauma subside, which was usually in twelve or twenty-four hours, and then attack it. In the subject of subluxation of the lens the question that arose was, What to do. He did not think it was good policy in subluxation or dislocation of the lens to go in and endeavor to extract it for the time being, as one was liable to meet a good many more difficulties than otherwise. A partial subluxation of the lens might remain almost indefinitely without the complete formation of a cataract, and if the patient had a good vision in the other eye it was absolutely unnecessary to remove that lens unless pathological conditions demanded it.

Dr. A. B. Middleton, Pontiac, thought the low percentage of sympathetic ophthalmia in the doctor's paper was misleading. The percentage of sympathetic ophthalmia must not be judged from the percentage of eyes that were inflamed, but rather the percentage of eyes that had penetrating injuries.

Dr. Benjamin Gleeson, of Danville, reported a case that came under his observation three months ago of subluxation of the lens in a man thirty years of age, who was riding on a box car, was thrown from the top of the car, and struck against an iron rail. He saw the patient two or three weeks after the accident. Patient was taken to the hospital in ample time and treated for the external wound. No attention was paid to the eye. Two or three weeks after the accident he saw him with this condition present. He had a complete rupture of

the sphincter of the iris with a general iridocyclitis. He had a good deal of pain, which usually accompanied iridocyclitis. He watched him for two weeks with the application of atropin and ice, but the iridocyclitis continued to get worse. He made an ordinary cataract incision in the lower portion of the cornea, and with the loop and hook introduced he removed the lens practically in toto. In four or five days the cornea healed. The iridocyclitis completely subsided and his vision with the glass was about 20/100.

Dr. Richard J. Tivnen, of Chicago, in referring to the point of how much the eye may tolerate dislocation or subluxation of the lens, mentioned the case of a young man, twenty-three years of age, in whom the lens was dislocated downward and to the temporal side, both sides. He talked the matter over with Dr. H. W. Woodruff, who suggested a rather clever idea, which would be to have the patient in the recumbent position and endeavor to get the lens in the anterior chamber, and use eserin and the needle, or perhaps extract, preferably extracting.

Dr. Frederick A. Guthrie, of La Salle, reported the case of a man, fifty years of age, who, while working in the yard, fell, striking something which penetrated the eye. He did not see him for twenty-four hours. When he saw him there was a perforation of the superior part of the cornea, near the corneoscleral junction. He sent the patient to the hospital and did an iridectomy and found the lens in the conjunctiva beneath three or four millimeters. He removed the lens. The man recovered and with a lens of 20/30 he was able to read with that eye. This was four or five years ago and there was no reaction since. This, he thought, was a rather unusual case where the lens was extracted from beneath the conjunctiva where the injury was done by some foreign body.

Dr. Willis O. Nance, of Chicago, said he had had two cases of dislocation of the lens in the anterior chamber, and strangely they both came under his care within three months. These were the only two cases of the kind he had ever had in his practice. In both instances the lens was removed by paracentesis of the anterior chamber, and a good vision resulted in both cases. One was a man who had a fellow eye removed a number of years ago. The second case was that of a boy who retired one evening, and the next morning some one called



attention to the fact that the eye was red, and it developed that the lens dislocated into the anterior chamber.

So far as dislocation in the vitreous is concerned, he had seen a number of these cases, and he thoroughly agreed that in a case of this kind we should leave the lens absolutely alone. He made an attempt to remove a lens dislocated in the vitreous and was unable to accomplish the result. He believed these lenses would remain in the vitreous for years without causing trouble, and any one who had ever tried to remove a lens from the vitreous chamber knew how exceedingly difficult it was to accomplish anything along that line.

Dr. Burkhardt, in closing, and in replying to Dr. Middleton as to the percentage of sympathetic ophthalmia or sympathetic inflammation being too low, wanted to impress upon the gentlemen that in his paper he only brought out the dangers that should be considered in regard to dislocation of the lens without rupture of the eye-ball, which were much less than they would be in a case of dislocation, as in a dislocation with rupture there was danger of infection from without, and while it was true that Dr. Middleton's objection was perhaps well taken, yet he thought he (Dr. Middleton) misunderstood the position taken in the paper.

#### Some of the Accidents and Complications Attending or Shortly Following the Extraction of Senile Cataract.

Dr. Casey Wood, of Chicago, pointed out that the causes of most of the accidents and complications that arise during and after cataract extraction were the result not solely of defects in the manipulative skill of the surgeon, but quite as often to lack of control on the part of the patient. Other causes of trouble were undesirable local conditions, immaturity of the cataract, the septic condition of the eye or its appendages, and to lack of the usual aseptic precautions. Whatever determined the unfavorable outcome of an operation, it was important that the student learn whether it had resulted from ignorance or carelessness on the part of any of those especially involved in the extraction.

Since the introduction of adrenalin and cocain in extraction operations, it was not uncommon after the expulsion of the lens to note corneal areas that had lost some of their protective covering. This result was undoubtedly due to the action of these remedies, especially of the cocain in softening the anterior epi-

thelium so that even stroking the cornea with the delivery spoon now and then sufficed to detach portions of it.

It occasionally happened that after the puncture or counter-puncture the surgeon discovered that he had inserted his knife upside down. It would be found that this accident was variously treated by different authorities.

In simple extraction the iris occasionally fell in from of the knife which complication generally arose as the result of improper manipulation of the instrument and usually when the cutting plane had been altered. In most cases it was best to proceed with the operation even though as a consequence an irregular form of iridectomy be done.

Experienced operators were generally conscious that they had not made the opening in the eye ball large enough for the extrusion of a large lens as soon as the corneal incision was complete, but beginners might not be aware of that fact until an attempt was made to extract the lens. When the lens could not, with moderate pressure, be removed through the opening, it was better to enlarge it with scissors or Black's blunt-pointed knife than to bruise the tissues and detach soft matter by pro-longer efforts to expel the cataract.

When too much cocain had been used, or in aged or weak subjects, a falling in of the cornea might occur, sometimes before, sometimes after, the expulsion of the cataract. At the first stage of the operation it need not embarrass the operator, but if the collapse happens after the removal of the lens a good plan was to fill the contracted chamber with warm, sterile, normal salt solution, and this step might be carried out as a part of the irrigation of the anterior chamber after a preliminary removal of cortical remains.

When a conjunctival flap was made there was always more or less bleeding from the severed scleroconjunctival vessels. This accident which not infrequently happens, especially if the flap be a large one, was responsible for a most objectionable feature in operations done with a conjunctival flap. He believed that undue bleeding was also the result of prolonged, excessive cocaineization and the too early use of suprarenal preparations.

An insufficient cystitomy was often a serious matter, but might generally be prevented by using a very sharp, or needle-pointed cystitome, better the former, entering it carefully and holding it firmly.

Prolapse of the iris, occurring immediately after the extrac-

tion, generally meant tags of capsule or vitreous between the lips of the wound. A fine, fibrillar, capsule remnant may hold the iris in this fashion and elude the curette or spatula used to free it.

Prolapse, or hernia, or some part of the iridic tissues was more common in the simple than in the combined operation, but in either procedure might be followed by inhealing or incarceration of the iris as a serious after complication.

Extreme care should be exercised in removing the dressings at the first few inspections of the eye following an extraction because the iris may be washed or pushed into the wound by the sudden outflow of aqueous induced by the opening of the lids and the consequent disturbance of the wound edges.

The most common immediate causes of vitreous loss were spasm of the orbicularis brought about by anything that made the patient squeeze up the eye; too marked use of the fixation forceps; undue pressure on or dragging of the capsule forceps or cystitome; a prolonged or too rapid section; an unexpected upward rotation of the eye when an instrument was in the anterior chamber, and too much force employed in an attempt to expel cortical matter or capsular remnants.

Post-operative iritis, especially its severer forms, was probably always associated with irritation or inflammation of the rest of the uveal tract. It varies greatly in intensity, from the simple form, due to mechanical irritation of the iris from retained lens matter to the most pronounced cases in which direct infection was the evident source of the inflammation.

Post-operative iridocyclitis might generally be regarded as a more pronounced form of infection than that just described, and was, as a rule, followed by loss of useful vision. Cases present, within twenty-four hours after the extraction, the symptoms of acute iritis soon followed by marked evidence of an intraocular inflammation, i. e., a blurred, swollen iris with exudates at its margins.

Suppuration of the external wound was by far the most serious calamity that could involve the eye operated upon, as it almost always terminated in panophthalmitis and complete loss of sight.

*DISCUSSION.* Dr. H. W. Woodruff, of Joliet, said he had never seen a case of atropin conjunctivitis in connection with a cataract operation except rather late, after atropin had been used for so long a time it was scarcely necessary to use it longer.

His idea of atropin conjunctivitis had always been that it was an acquired condition, and he still held to this idea; that is, if he were using atropin for the patient's eye and he should develop atropin conjunctivitis at once after a few drops of atropin, he would think that atropin had been used in his case perhaps many years before. He remembered more than one instance in which he used atropin for a long period of time for an interstitial keratitis, using it for weeks and then the case recovered and then there was no atropin conjunctivitis, and then years after, when refracting this case, one drop of the atropin would bring about this same condition. So he thought possible a condition of that kind might be present at other times.

Dr. Willis O. Nance, of Chicago, said that many of the accidents attending operations for cataract could be avoided by giving attention to five or six details. The first important thing was sufficient anesthesia. Just how that could best be obtained operators differed. Dr. Wood favored cocain and holocain. Personally he invariably used the cocain solution and he found that the amount of cocain and the length of time it was administered varied considerably in each individual patient, but whatever was done the patient should receive sufficient of the anesthetic. Without that no operation for cataract could be successful, and one was apt to have some complications at the time of the operation.

A second important feature was that of adequate light, especially when performing an iridectomy, and he took it most of those present did an operation for cataract by iridectomy. He thought the operation by iridectomy was by far the safest procedure.

The third was the corneal incision. Dr. Wood had mentioned the dangers of a too small corneal incision. The incision should be made large enough. The fourth feature was the question of cystitomy that Dr. Wood had referred to. It was quite an idea to test the sharpness of the cystitome every time it was employed. A fifth feature was gentle but firm pressure in removing the lens. Traction on the cornea constantly could not help but do damage to the eye; but firm, and at the same time exceedingly gentle pressure, was indicated, and if the incision was large enough, the lens would come out with very little trouble.

The sixth feature was the toilet of the wound. If we did not have the very best kind of light we might leave shreds of

the iris in the wound, with the after result of which we were all familiar.

The seventh was the question of bandaging. It was very difficult to put on an eye a bandage so it would stay, and at the same time without exerting undue pressure on the eye-ball. He knew in his early experience he put bandages on too tightly. He was satisfied in some cases it had tendency to prevent rapid or uniform union of the corneal wound. This was exceedingly important.

Dr. George F. Suker, of Chicago, pointed out that the inordinate use of cocain in operations for cataract was to be deprecated for the simple reason there were a number of cases on record in which the use of cocain was directly the cause for collapse of the cornea, and collapse of the cornea was certainly not an advantageous complication in cataract extraction. Therefore, the moderate use of cocain was to be advised.

As to the use of adrenalin, he suggested the use of it three or four times a day for twenty-four hours before cataract extraction. Very frequently there were complications in manipulation to get the eye-ball exposed. The most preferable way he knew of was the use of the thumb with its fixation on the orbit and have the patient look straight upward and raise the lid with pressure, leaving the lower lid to take care of itself.

In regard to the use of the cystitome, he much preferred the use of capsulotomy forceps. The larger the piece of the anterior capsule one removed, the less liability there was for a secondary cataract to develop.

Dr. C. F. Burkhardt, of Effingham, had had very little experience with cataract operations, but owing to the fact that cocain was so destructive to the cornea, he asked Dr. Wood what his experience had been with novocain.

Dr. Wood, in closing, emphasized the point of examination of the eye after the ordinary cataract operation. He advised operators against allowing internes and nurses to examine the eye, because if the examination was not properly made, there might be certain damage done. As to the use of cocain and its evil effects, he tried to lay stress in his paper that there should be only one drop at a time every three minutes for fifteen minutes, making five drops, never more. He had had some experience with novocain but did not like it. He did not think it produced deeper or better or longer anesthesia, and in his experience it was very irritating. He preferred the hydro-



chlorat of cocain, but he had had very little experience with nitrates.

### The Treatment of Secondary Divergent Strabismus.

Dr. H. W. Woodruff, of Joliet, stated that at the November, 1911, meeting of the Chicago Ophthalmological Society he presented a case of this kind upon which he had operated the previous August. The method of operating and the result obtained brought out such favorable comments that on the invitation of the chairman of the section, he desired to present the subject again with a report of two additional cases. He disclaimed anything new in the operation, and it was only to call attention to its simplicity and certain success which followed that he trespassed upon the time.

The method followed in the reattachment operation is as follows: after obtaining anesthesia by the instillation of four per cent cocain solution, a subconjunctival injection of one per cent cocain with five drops of adrenalin solution one to one-thousandth should be injected beneath the conjunctiva in the field of operation. After massaging the resultant swelling for a few minutes, a vertical incision is made in the conjunctiva only over the site of the old muscle insertion at least twenty millimeters in length. The conjunctiva is dissected from the capsule of Tenon well underneath the caruncle. The capsule is then picked up with the forceps and dissected from the sclera until all capsular and muscular lesions are loosened from the sclera. Two horizontal incisions are made in the capsule corresponding to the normal position of the muscle borders, but somewhat wider than the tendon itself. This cut may extend as far as the caruncle itself. This gives a tongue-shaped flap which somewhere near the caruncle must contain the retracted internal rectus muscle. The conjunctival flap entirely separated from the capsule is held out of the way by an assistant. The tongue-shaped flap containing tendon and capsule is held up by broad forceps while sutures are inserted (No. 00 formalized pyoktanin catgut) from beneath outward, but not through the conjunctiva. If the special needle shown was used the sutures could be placed far back beneath the caruncle. Two of these sutures were placed, one in the upper portion of the flap and one below and tied according to the Worth method. These sutures are inserted in the sclera, not at the limbus, but over the site of the original insertion of the tendon. Just before

they are tied a third one in the form of a mattress suture should be passed between the other two and tied in the same manner. When these three sutures are drawn tightly and tied in three knots the eye-ball is brought back into the proper position. The conjunctival flap is replaced with silk sutures. If the caruncle is still sunken it may be drawn forward by the central conjunctival suture sufficient to relieve that deformity.

During the operation a portion of the tongue of capsule may be removed, if it is so excessive as to cause much bunching, which, however, will later disappear. It is best to apply a binocular bandage for forty-eight hours. The external rectus is tenotomized or not according to the immediate effect of the advancement.

After reporting two cases, Dr. Woodruff said he was well aware that there was nothing startling in the report of these cases or in the operation, but the following factors might be worthy of special consideration: 1, These cases were adults, so that local anesthesia was sufficient, especially if a subconjunctival injection was made of cocain and adrenalin; 2, the conjunctiva was not advanced unless necessary on account of sunken caruncles; 3, no attempt was made to dissect out the tendon or muscle. The tendon and muscles must lie in the capsule; 4, the suture must be placed far enough back beneath the caruncle, and then sufficient tissue will be obtained to give the desired effect; 5, place the attachment of the flap over the sight of an old insertion; 6, if the effect was not sufficient a tenotomy of the external rectus was indicated; 7, the length of time following the original tenotomy did not make any difference in the result. The muscle did not atrophy. If it did, it was only a simple atrophy and soon regained its function at least to a degree.

In the first case fifteen years had elapsed after the second and damaging tenotomy. In the second case nineteen years, and in the third case twenty-eight years. He believed action could be restored to the muscles after any period of time.

**DISCUSSION.** Dr. Richard J. Tivnen, of Chicago, said the work that Dr. Woodruff had done in this particularly discouraging field was one that should excite interest because it was in a class of cases that we were very likely to shirk operation. Most of these cases were very difficult. We have been possessed with the idea that the muscle had atrophied. Dr. Woodruff told us that this was not true, and he believed the muscle might be at any time restored to abduction. One case he cited

he noticed was some twenty years old. The speaker had two cases, both as it happened from Joliet, and both operated on by another practitioner, and both operated on when they were little children. One came for operation to him (Dr. Tivnen) some twelve years after the original operation, and the other some fourteen years. He used practically the same method Dr. Woodruff described. He employed a long, sharp-pointed hook, with which he could easily grasp the muscle and he was able to bring it forward. He was able to get a good result in one of these cases, but only a fair one in the other. It seemed to him it would be well to do a tenotomy in nearly all of these cases. The tension on the suture was such that it seemed to him we would likely bring about certain results if the tension was relieved, or doing at least a partial tenotomy.

Dr. C. A. E. Lesage, of Dixon, asked if in any of these cases the patients complained of diplopia. He had in mind a case with a double tenotomy about eight years ago, which he saw two months ago. Her chief complaint was diplopia. She was a domestic, and one could imagine about what would happen in the kitchen—there was a continual breaking of dishes. She came to him with the idea of having a secondary operation. She wanted to know if he could guarantee the diplopia would disappear. He would not insure her whether it would relieve her of the diplopia or not.

Dr. George F. Suker, of Chicago, stated that the essayist had been very technical about the matter, and whether he realized it or not, he had certainly not gone wrong as far as the physical principles were concerned. The operation he had devised was original with him. There was no doubt about that, and it was a good operation and would give excellent results every single time if one carried out the principles which the essayist had laid down.

Dr. Sterling, of Pontiac, said that all of these tenotomies were not limited to quacks. He saw one eminent surgeon do a similar operation last fall. There were some visitors here on the way back from Los Angeles and they stopped to see one of the best operators in this country, and he did this operation. Some of these patients came from the hands of the so-called most reputable men we had. He had now five cases, all from the hands of as well known ophthalmologists as we had. Three of these cases were operated on by this man in the same day, without any examination as to the refraction and without any-

thing more than a simple glance at the eye, and he told them they needed an operation. In none was there diplopia or a history of headache, or that they might need glasses. Three were operated on one day, and two of them were operated on the second day. Three cases were in the hands of a neurologist today; the other two cases were in the hands of the same man and were more or less subjects for the neurologists.

Dr. Woodruff, in closing the discussion, said the question of diplopia only entered into one of these cases. Of course, one is certain to have diplopia if the patient has a 6/6 vision or approximately the same vision in each eye. If a patient had a good vision in each eye, one could figure he was going to have diplopia. This was so in the first case he reported. This young man had diplopia, but he had gotten to a point, after one year, where he said it did not annoy him, and he was so much better satisfied and his personal appearance had improved, and that he did not find any particular fault with the diplopia. Of course, a cure of either could not be obtained.

As to irregular practitioners doing these operations, he confessed that he had done it himself, but not of late years. It was at a time when he began to practice ophthalmology, up to the time something was said about the dangers of tenotomies, and it took a little while before these dangers were appreciated. This did not happen now, because if one did a tenotomy and the same effect was obtained, he would naturally at once rectify that condition.

#### **Prevention of Blindness and Conservation of Vision.**

Dr. Thomas A. Woodruff, of Chicago, said that preventable blindness was due to numerous and various causes, among them being industrial accidents; accidents at play, Fourth of July celebrations; sequelae of some of the infectious diseases; wood alcohol; sympathetic inflammation; progressive nearsightedness; eye strain of various kinds, particularly among school children and ophthalmia neonatorum.

Accidents occurred among children playing with sharp-pointed instruments, such as knives, sharp-pointed sticks, scissors, etc., the handling of firearms, fireworks and fire crackers, etc., by those who were inexperienced in their use, all causing injuries to the eyes, which, if careful preventatives had been taken, could easily have been avoided.

Dr. Woodruff then referred to the accidents which occur

in the various trades and industries and enumerated them. It was important that an injured eye should receive aid promptly and from one who was skilled in the handling of such cases. It was not infrequent that wounds of the cornea resulting from foreign bodies becoming imbedded were infected as a result of their removal by the use of a dirty handkerchief, or cloths, and unclean instruments in the hands of a fellow workman who was ignorant of the necessity for cleanliness and the danger of infection.

The prevention of blindness from industrial accidents was of interest to the general public, not only from a humanitarian standpoint, but from an economic one as well. Partial or total reduction of vision lessened efficiency and therefore made many victims a charge on society. The laity should be educated as to the seriousness of even slight injuries when infected, which might cause loss of eye sight or eye-ball.

Among others who had adopted plans for the protection and compensation of their employees might be mentioned the United States Steel Corporation and the International Harvester Company, who had provided various devices and appliances to prevent accidents and protect the eyes. Not only was it important to compel the employer to provide proper safety appliances, danger signals and rules for the protection of the employe, but there should be laws enforcing the latter to make use of such protective appliances provided. He should be educated to the danger of the neglect of these precautions.

Trachoma was a disease that was imported into this country by immigrants from Europe. It was epidemic in many localities. About sixty per cent. of all blindness in Europe was due to trachoma. When it once got a foothold in a community it was difficult to control, being easily transmitted and was a source of danger to all who came in close contact with it. If treated early, good sight could almost always be preserved, but the course of treatment was necessarily long and tedious, and it was not always easy to keep the patient under control, occurring as it did among the poorer classes, who were financially unable to devote the time necessary to receive a prolonged course of treatment and thus neglected exacerbations occurred which ultimately left the cornea scarred, and by the time the disease had worn itself out vision was seriously impaired or entirely lost.

A person afflicted with trachoma was not on a par of productive capacity with a healthy individual. That trachoma was



present in certain schools in Chicago was beyond question. Nine per cent. of the pupils admitted to the Illinois school at Jacksonville were blind from trachoma. Trachoma should be made a reportable disease as it was in Philadelphia.

Ophthalmia neonatorum stood out conspicuously as the cause of about twenty-five per cent. of cases of preventable blindness. The evils of this disease were being rapidly controlled by the organized effort that was being put forth in various sections of the country through the combined efforts of the medical profession, sanitary authorities and the public.

The cost of its prevention amounted to an infinitesimal sum. A one per cent. solution of nitrate of silver instilled into the eyes was a sure preventive, two cents worth of which may save the sight of a citizen, and save to the state ten thousand dollars for his support.

In the State of Illinois we lack laws that require (1) that all births should be reported within forty-eight hours. (2) All cases of inflamed eyes occurring within the first two weeks after birth should be reported within twenty-four hours. (3) The regulation of midwives and midwives' schools. Of the sixty thousand births reported in Chicago, twenty thousand were attended by midwives. (4) Compelling the use of a prophylactic at birth by physicians as well as midwives. (5) The distribution of a chosen prophylactic with explicit directions for its use. (6) Education as to the dangers of inflamed eyes, methods of infection and precaution. The systematic examination of the eyes of all school children at the beginning of each year should be compulsory and recognized as a necessary adjunct to the school curriculum. Parents should be notified when such defects exist and advised to have them corrected at once. Examinations of this sort can be made by the school nurses, school doctor or teachers, but preferably by the latter, especially if the system proposed by Dr. Frank Alport was followed, which was simple and inexpensive, and would disclose the existence of ninety-five per cent. of serious eye defects.

Unnecessary blindness imposed in infancy was an injustice to the child. Unnecessary blindness robs the state of the most valuable asset—a productive citizen.

Following the reading of his paper, Dr. Woodruff offered the following resolution, which was adopted:

*Whereas*, Organized movements are now being conducted

throughout the different states for the conservation of vision and the prevention of blindness, and

*Whereas*, Such measures can be successfully carried out only in conjunction with the general public; and

*Whereas*, The benefits arising from such efforts when rightly designed and properly conducted are great, not only from a humanitarian, but as well from an economic viewpoint, therefore, be it

**RESOLVED**, That the Section on Eye, Ear, Nose and Throat of the Illinois State Medical Society endorse the work on the conservation of vision and the prevention of blindness being carried on by the American Association for the Conservation of Vision, and approve the appointment of a committee which will be charged with the duty of organizing and conducting such a movement in the State of Illinois. This committee to include sanitarians and other physicians, ophthalmologists, architects, illuminating engineers, teachers and others who may be interested. The work to be co-ordinated with that of the American Association for the Conservation of Vision.

**DISCUSSION.** Dr. Willis O. Nance, of Chicago, said the members fully appreciated the particular matter Dr. Woodruff had called attention to, and that an ounce of prevention was worth many, many pounds of cure. He had in one instance called attention to the fact that one or two ounces worth of silver would save a cost to the state of approximately ten thousand dollars, and there were other matters that ought to be brought more forcibly to the attention of the public. It seemed to him it was up to the members of this section, the eye men particularly, to take it upon themselves to spread such knowledge through the territory in which they practice. The movement of the legislature for the prevention of blindness was also a good one. We could do a great deal of good by proper legislation in asking the co-operation of factories and foundries and all sorts of manufacturing establishments.

Dr. Frederick A. Guthrie, of LaSalle, thought a liability law would be a good thing, as it would make all the employers liable for injuries to their men and to see that they got the best attention, and also provide protection for the eyes of those who worked for them. He thought that law would have some effect on the prevention of blindness.

The resolution was adopted.

Dr. George F. Suker, of Chicago, made some remarks on the use of a conjunctival flap in perforated wounds of the anterior globe, his remarks being accompanied by diagrams and blackboard illustrations.

Dr. C. A. E. LeSage, of Dixon, read a paper on "Treatment of Corneal Ulcers."

#### **Important Eye Symptoms in Albuminuria of Pregnancy.**

Dr. A. B. Middleton, of Pontiac, pointed out that occasionally in cases of albuminuria of pregnancy certain eye symptoms presented themselves, the early recognition of which meant much for the patient's future power of vision. True pathological eye symptoms did not accompany all such cases; in fact they were only found in a small percentage of them. Some came on suddenly and passed on toward total blindness, and some were more or less transitory unaccompanied by any marked lesion of the fundus oculi, while others less intense, but more lasting, progressed steadily and slowly with marked fundus oculi changes which were plainly seen with the ophthalmoscope. These latter symptoms were the ones that would be considered.

A patient, who was pregnant, with a renal affection great enough to cause a dimness of vision to such an extent that she could not thread a needle or read ordinary print easily with spells of temporary blindness, during which time everything was dark about her, or at times, saw all colors of flowers and lights, was suffering from an extensive auto-intoxication. The toxins were strong enough to cause a paresis of accommodation and such a symptom as he had just mentioned was certainly due to toxins of a very serious nature. If these symptoms were allowed to go unchecked, the patient would soon have eclampsia and possibly die; if she did not die she was most certain to develop an albuminuric retinitis or an optic neuritis that would impair her vision the balance of her life, or possibly there might develop total blindness without visible fundal changes. Such cases were known as uremic amaurosis, not the slightest sign of a retinitis or optic neuritis being seen. When the autointoxication left the cases that it had caused to have such symptoms, the vision usually returned, and if there were but few attacks the vision might not be impaired at all. These extreme cases usually had nervous symptoms, such as headache, vomiting, dyspnea, loss of consciousness, convulsions, and symptoms of uremia following the return of sight. The pupil reaction was of

no value whatever in the most marked cases; the reactions to light were perfect due to the fact that the trouble was not in the retina or the optic nerve itself, but was in the higher sight centers of the brain.

Albumin toxins usually caused the eyes to be affected alike, while if one eye alone suddenly became blind it was as a rule the result of an intra-ocular hemorrhage which might come in any case of pregnancy with or without albuminuria. These symptoms were found mostly in cases of primiparae, where the patient was well along in years before the first labor. Besides the trouble seldom, if ever, presented itself before the sixth month of gestation. Blindness was not primarily due to the albumin in the urine, but was the result of the secondary effect produced by the albumin toxins upon the higher sight centers within the brain, which in turn destroyed the retina and optic nerve.

*DISCUSSION.* Dr. Benjamin Gleeson, of Danville, did not think cases of albuminuric retinitis were as rare as the doctor thought they were. He had in a period of three years seen three cases of which all had resulted fatally. One was a case of a young woman, nineteen years of age, which he saw a year ago last May. She at that time came in for a case of refraction, and he refracted her vision at 20/30 and there was absolutely no fundus lesion so far as he could see. In two weeks she came and said she could not see very well with those glasses. He sent her back, and in a month she returned and said there must be something wrong with her eyes as she could not see as well as she should. At this time he took her in a dark room as in the other examination and he found one of the most pronounced changes had taken place. He took her to the test card and found the vision had changed from 20/30 to 6/200. He sent her to the hospital, put her on the ordinary treatment for this condition and constitutionality. Her family physician was in charge of the case as well. After a period of ten days there was some improvement. After that she began to have some dropsical symptoms and Dr. Herrick, of Chicago, was called in consultation on account of the constitutional symptoms. He saw the case and also examined the fundus of the eye, and he could not be made to believe that the case was 20/30 six weeks before. The further history of the case showed that during the past two months she had passed an enormous amount of urine. Dr. Her-

rick gave her a rather serious prognosis as to the vision and also regarding her life. In a period of a month's time her vision returned from 6/200 to 20/40. She was to be married two months later. We gave her absolute instructions not to be married. Without our advice she was married and left our county and started to the State of Washington to live. In the State of Kansas she stopped to visit her grandmother and was taken ill and was ill three weeks before going to Washington, and on her arrival took to bed and died in three weeks from uremic coma.

I have had since one or two other cases. One woman was treated for headaches for three months. She was afterwards referred to me on account of the headaches. Her vision was 22/100 with distinct albuminuric retinitis. She died within four months after I had seen her.

Dr. C. A. E. Lesage, of Dixon, said that ocular symptoms occurring during pregnancy in women who previous to pregnancy had nephritis offered a worse prognosis than ocular symptoms occurring during pregnancy, and in those patients suffering from nephritis and subsequently becoming pregnant the eye symptoms usually appeared earlier during pregnancy, during the earlier months, whereas those cases in which it occurred later offered a better prognosis.

Dr. A. E. Prince, of Springfield, said that if a woman went through pregnancy and had albuminuric retinitis, if she got pregnant again she ought to have an abortion. This was his recommendation and he thought it was perfectly justifiable, and he would explain the matter to the patient and to the family physician.

Dr. George F. Suker, of Chicago, would advise an abortion to be performed with the second pregnancy, provided the albuminuric retinitis at the time of the first pregnancy was accompanied by mental complications.

Dr. Middleton, in closing, said he only wished to remark that albuminuric retinitis and albuminuric optic neuritis ought to be discovered the first time the patient was pregnant. He agreed with Dr. Prince and Dr. Suker as to the advisability of inducing abortion in the second labor, provided the retinitis in the first labor was severe and complicated with mental symptoms, which would certainly mean eclampsia and death.



## NEWS ITEMS

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

Dr. and Mrs. D. W. Greene of Dayton, Ohio, will sail on the Baltic from New York, July 3rd, for a three months' trip abroad. Dr. Greene will attend the Oxford Ophthalmological Congress July 17-18, and later visit the Pagenstecher's clinic at Weisbaden.

Dr. Howard V. Dutrow, of the Eye, Ear, Nose and Throat Dept. of the Ancon Hospital, was recently elected Secretary-Treasurer of the Medical Association of the Isthmian Canal Zone, which is a constituent association of the American Medical Association.

At the annual meeting of the Colorado Ophthalmological Society the following officers were elected for the ensuing year: Secretary, Dr. Ellet O. Sisson, of Denver. Treasurer, Dr. W. A. Sedwick, of Denver. Chairman of the Executive Committee, Dr. A. C. Magruder, of Colorado Springs.

Dr. Wm. R. Dabney, of Marietta, Ohio, has been arrested on a charge of insanity. A patient upon whom he operated died soon after the conclusion of the operation. Mrs. Dabney caused his arrest as she feared for her life and her statements are supported by physicians who witnessed his strange behavior in the operating room and protested against his rough treatment of the patient.

### A GENTEEL FORM OF FEE SPLITTING

Now is the time to send them in without exposure to the investigations of the Committee on Ethical Relations!

The Maxim Institute doing business within *gunshot* of the business centre of Chicago will cure every case of Drug Addiction in a few days, the family physician being entitled to a "consultation fee of \$25.00 for each case sent us." Surely that is better business than acquiring a measly \$1.25 from the wholesale optician as a commission on a pair of glasses.

### ILLINOIS STATE MEDICAL SOCIETY SECTION ON EYE, EAR, NOSE AND THROAT

This section has been fully organized, and began its work with a banquet Tuesday evening, May 21, in the New Leland Hotel, Springfield. Wednesday was devoted to the scientific program, and Thursday was given over to clinics held at St. John's and Springfield hospitals.

The following papers on the eye and its diseases were presented at the meeting: Hemorrhage as Related to the Eye, Ear, Nose and Throat, A. E. Prince, Springfield; Traumatic Dislocation of the Crystalline Lens without Rupture of the Eyeball; also the report of a case treated, C. F. Burkhardt, Effingham; Accidents and Complications Attending or Following the Extraction of Senile Cataract, Casey Wood, Chicago; Prevention of Blindness and Conservation of Vision, Thomas Woodruff, Chicago; On the Use of a Conjunctival Flap in Perforated Wounds of the Anterior Globe, George F. Suker, Chicago; The Treatment of Secondary Divergent Strabismus, H. W. Woodruff, Joliet; Treatment of Corneal Ulcers, C. A. E. Lesage, Dixon; Important Eye Symptoms in Albuminuria of Pregnancy, A. B. Middleton, Pontiac.

Clinics were held in the various hospitals and were well attended. Dr. Casey Wood in the absence of a suitable case for operation, demonstrated the Smith Indian cataract operation on pigs' eyes.

The new section promises to be a huge success, men from the entire state attended who formerly found little to interest them in a long general program.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Pol.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.) C. H. Francis (Pol.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pusey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (E. E. N. T.)	Willis O. Nance (C.C.S.)	Willis O. Nance (E. E. N. T.)	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (F.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Inf.) D. A. Payne (Inf.) Emily Selby (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) Wm. H. Wilder (Rush) N. A. Young (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) J. B. Loring (Inf.) Wm. H. Wilder (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Alport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) J. B. Loring (Inf.) Wm. H. Wilder (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) Wm. H. Wilder (Rush) N. A. Young (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) J. B. Loring (Inf.) Wm. H. Wilder (Inf.) Wm. H. Wilder (Inf.) N. A. Young (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) J. B. Loring (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)
3 P.M.	W. Allen Barr (C.C.S.) Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honor Streets.	Pol.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

Vol. XXI

CHICAGO, JULY, 1912

No. 7, New Series

## ORIGINAL ARTICLES.

### REMOVAL OF A SPINDLE-CELL SARCOMA FROM THE RIGHT ORBIT. RECOVERY WITH INTACT OCULAR APPARATUS

BY FRANK ALLPORT, M. D.

ATTENDING OPHTHALMIC SURGEON, ST. LUKE'S HOSPITAL,  
CHICAGO

As one is generally obliged to deal with intraorbital tumors whose recurrence is highly probable it is a satisfaction to be able to report, now and then, the extirpation of a sarcoma whose form renders the result more favorable.

Miss A. B. C., Age 24. Consultation October 26, 1911. Perfect health. Last December noticed a slight prominence of the right eye, which very slowly increased, although even now it is barely noticeable. Vision = 20/20. Fundus normal. No diplopia. Maddox = 1 deg. exophoria. Abduction = 7 deg.; adduction = 18 deg. There is a slight divergence of this eye on fixation. There is a little fullness of the lid in the upper-inner angle and the presence of some abnormal growth can be faintly detected on deep palpation; it has not the feeling of bone. No pain. An examination of the nasal spaces by Dr. Frank Brawley revealed nothing abnormal. Field of vision normal.

*Operation.* A curved incision, similar to a Killian frontal sinus incision, was made. The opening was cautiously deepened, care being taken to avoid injuring either the superior rectus, internal rectus or the superior oblique muscles. An opening was made through the orbitotarsal fascia and a roundish body was clearly seen between the lips of the incision. A large spoon curette was gently inserted beneath the growth, by means of which the tumor was completely enucleated, without rupture of its capsule.

The attachment to the orbital walls was slight and pediculated. The tumor was about the size and shape of a small pecan

nut. A second tumor of practically the same description was now likewise enucleated, and then a third of about the size of a small coffee bean. They were all encapsulated; the capsule in each was removed unbroken. Artery forceps were not used as the bleeding was not profuse, and was reasonably well controlled by adrenalin. The sides of the wound were held apart by long, smooth hand-retractors. One of the retractors also held the eye away from the field of operation. A careful examination with the finger revealed the fact that all abnormal tissue had been removed. Irrigation and suturing followed. Uneventful recovery. Patient dismissed in six days, at which time her vision was 20/15 and her fundus was normal. The proptosis and divergence disappeared and the muscular action was normal. Abduction 5 degrees. Adduction 18 degrees. Maddox 1 degree exophoria. There will probably be no deformity whatever.

The pathologocal report by Drs. Le Count and Davis at St. Luke's Hospital, is as follows: The largest tumor was examined. It is surrounded by a definite, firm, fibrous capsule. The interior is soft, friable, and grayish in color, some parts being firmer than others. There are no hemorrhages or necroses. The tissue is composed of spindle cells which are arranged in bundles and whorls with a moderate amount of intercellular substance. Dividing nuclei are seen but are not numerous. The tissue is not highly vascular. The tumor belongs to the sarcoma group and is of the spindle-cell variety. From the relatively few mitotic figures present and because of the presence of a well defined capsule the tumor does not appear to be highly malignant.

June 2, 1912. At this date the patient is to all appearances in good health. Ocular condition still as above reported.

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## KERATOTOMY FOR THE REMOVAL OF CORNEAL SCARS AND OPACITIES.

G. B. JOHNSON, M. D.

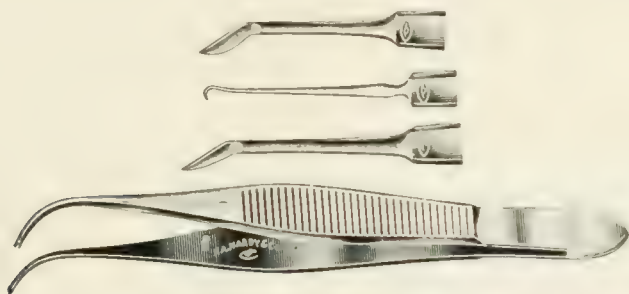
FRANKLIN, PA.

When the cornea is occupied by scar tissue while the remaining structures are normal, it seems lamentable that the loss of transparency of the cornea should totally prevent the use of the eye whose essential parts remain otherwise intact. There have been many attempts to find a way of restoring the function of the eye with varying degrees of success. When the



central part of the cornea is occupied by a dense opacity, it may be possible to improve vision by displacing or enlarging the normal pupil, or making a new second pupil behind a clear section of cornea.

Displacement of the pupil has been attempted by pulling the pupil to one side, and fixing it by establishing an anterior synechia. This method has been abandoned, because the synechia has been proven to be an element of great risk to the patient. Iridectomy may act in one of two ways, either by enlarging the pupil, or by making a second pupil behind the clear cornea. The author, in 1908, described his iridectomy



operation for relief of this and other conditions, in which an artificial pupil is indicated, by a method quite similar to that devised by Zeigler at the same time, and which was worked out without a knowledge of what the latter was doing.

Iridotomy is useful in cases in which the opacity is limited. And it is a much safer and simpler procedure than fixation of the pupil or iridectomy. Von Hippel, Salzer, Fuchs and others have attempted Keratoplasty with but slight success. The idea of Keratotomy for the cure of corneal scars, and some opacities, was first suggested to the writer, when in removing a corneal section for microscopic examination in a case of nodulitis case, a sufficient number of others have been operated upon tissue was encountered. This case was successfully operated upon and reported at a meeting of the Academy of Ophthalmology and Oto-Laryngology in 1909. Since the nodular Keratitis case, a sufficient number of others have been operated upon for the removal of corneal scars and opacities, with enough improvement in vision to warrant recommending it to the profession as a method worthy of consideration in many cases.

The first three of these operations were done with a Graefe cataract knife and small dressing forceps. These were found inadequate, so the writer devised a special set of instruments

for this work, which were made by F. A. Hardy & Co., Chicago. The set consists of a Keratome, fixation forceps, and small tenaculum. The blade of the keratome is attached to the handle in such a way that it will cut in any direction, or from any angle. The fixation forceps have light, but rigid curved ends, which terminate in mouse teeth set at such an angle that the corneal tissue, which is to be removed, may be grasped firmly without injury to the surrounding tissue. The special tenaculum is, in miniature, a dissecting tenaculum.

The usual precautions relative to the health of the patient and his eye, which might bring about infection, should be observed the same as for a cataract extraction. After cocainization of the eye, the lids and eye-ball are flushed thoroughly with normal salt, boracic acid, or Seiler's solution. Strong solutions cause considerable reaction, with the consequent danger of the reformation of scar tissue. The lids are separated with a speculum and the eyeball steadied with the tip of the thumb and forefinger placed on either side of the part of the cornea to be removed.

A perpendicular cut is made with the Keratome around the scar, or opacity, to an extent commensurate with its depth, going through successively the the anterior epithelial layer, the anterior limiting layer, or Bowman's membrane, which is a modification of the next layer, or substantia propria.

And the substantia propria, which consists of about sixty regular lamellae running parallel with the corneal surface. The alternating lamellae or layers have a direction at right angles to each other, and are joined together by bands.

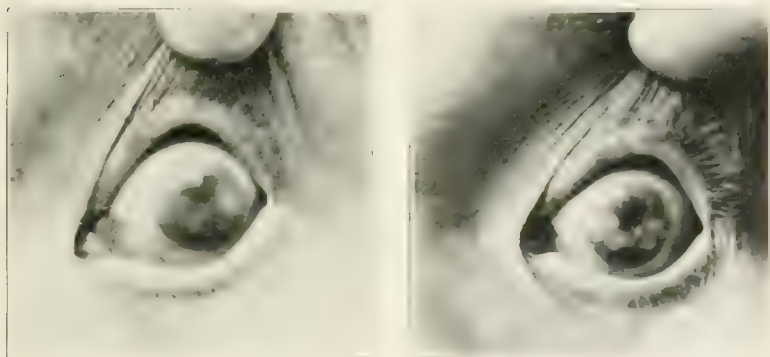
The success of the operation depends upon the removal of the abnormal tissue in layers, until clear cornea is encountered. If this is done correctly, the surface will be comparatively smooth, clear and parallel with the uncut corneal surface. In other words, the last layer must be intact.

The writer believes that care in this respect prevents severe reaction, such as occurs in deep wounds and ulcers of the cornea, and in which the primary plug of proliferated epithelial cells, and polymorphonuclear leucocytes, are replaced by proliferated corneal corpuscles, which eventually form fibrous tissue. Trauma, and the introduction of micro-organisms are probably the exciting factors in the causation of the inflammation, in deep corneal injuries and ulcers, and the consequent formation of scar tissue. When the corneal tissue is

removed carefully to a clear and healthy layer, then it seems as if repair of the denuded surface was affected by rapid proliferation of the epithelial cells and Karyokinesis of polyphosphonuclear leucocytes alone, without help from the scar forming corneal corpuscles. This deduction is borne out by the fact that considerable astigmatism results after Keratotomy. While in the case of a corneal ulcer, or injury, the cavity is filled with fibrous tissue to the level of the corneal surface.

The substantia propria may be removed to almost its entire depth, but care must be exercised that the underlying elastic Descemet's membrane is not cut into.

The next step in the operation is to flush the eye with one of the solutions mentioned, for the preparation of the eye. The lids are closed and covered by a thin layer of cotton wet with



Case 1. Nodular Keratitis one year after Operation.

Case 1. Nodular Keratitis before operation.

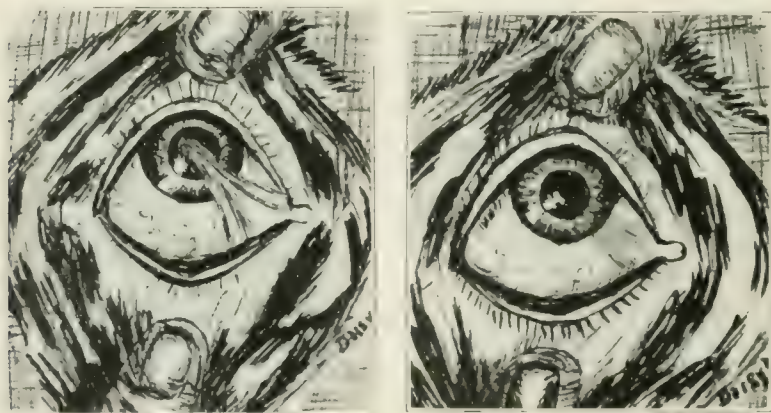
boracic acid solution and placed so that the fibres cross the closed lids at right angles. This seals the lids, so that the dressing does not work in between them. Several layers of gauze are applied and attached by adhesive strips. The patient is put to bed, and if there is pain, ice compresses may be used. Daily dressings should be done by the method indicated.

Out of fifteen cases operated upon, but two will be described in detail to show the result.

Case 1. Mrs. P., a widow, aged sixty-two, six opaque nodules, with coalescing bases, on left cornea. Vision reduced to counting fingers. The right eye presented two nodules, situated on each side of the pupillary area. Vision R. E. 20-40. A microscopical section showed decrosis of the cornea, with cells devoid of nuclei, and some incrustation with lime salts. No tubercle bacilli.

Treatment with dionin, and ung. hydrarg. oxidi flav. was used for six months without result. Keratotomy was performed, and in six weeks the cornea was quite clear and smooth. Vision of the left eye 20-70 with a plus .75 sphere. Right vision has decreased to 20-100. It will be noticed that astigmatism did not follow, as the entire anterior corneal surface was removed.

Case 2. Mrs. A., aged 70. A large cicatricial pterygium of the right eye, which, from the history, must have developed from a large corneal ulcer, when the patient was about twenty years old. Great chemosis of the conjunctiva must have followed, with attachment at the point of ulceration. The base of the triangular conjunctival fold extended from the nasal



Case 2. Cicatricial Pterygium.

Case 2. Cicatricial Pterygium five weeks after removal.

canthus, to near the limbus, at which point a probe could be passed beneath it. The apex of the pterygium extended from the limbus, across and was attached to the cornea, to a point anterior to the opposite pupillary margin. The pseudopterygium was freed at this limbal attachment, raised, and a good sized flat piece of fibro-cartilaginous like tissue was dissected from beneath the pterygium to allow of the conjunctive being smoothed out. Stitches were then taken in the upper and lower margins of the flap of conjunctive.

The pterygial head was removed and a dense corneal scar was seen covering the pupil. The scar tissue was removed by Keratotomy and in five weeks a clear cornea was the result. Vision R. E. 20-50, with a plus .75 cylinder, axis 130.

## ANOMALIES OF REFRACTION AND THEIR RELATION TO ABNORMALITIES OF OCULAR BALANCE.

By S. D. RISLEY, M. D.

PHILADELPHIA.

Within the lifetime of a single generation the treatment of asthenopia, presumably dependent upon faulty ocular conditions, has assumed a complexity not fully comprehended by our immediate predecessors. In a very large group of asthenopic patients we now know that more is required than the prescribing of glasses for each eye which secures a relatively normal acuity of vision for distance and convenient near point for required work.

Painstaking and elaborate study of anomalous conditions has added to our appreciation not only of their complexity, but also of their etiologic significance in many ocular affections and in some general disorders. Comfortable vision with two eyes depends upon the harmonious relation of so many factors, anatomical, physiological and optical, that we should not find cause for surprise if, in so complex a system as the combined ocular apparatus, we observe frequent disturbance of function growing out of abnormal variations in one or more of these factors.

In 1895\* I called attention to the fact that the harmony of these relations was liable to disturbance not only from various forms of disease affecting the motility of the eye, but by anatomical variation in the form and size of the eyeballs, and by the anomalous origin and attachments of the extraocular muscles; that these anomalous conditions were usually associated with more or less obvious deformities in the anterior segment of the skull which modified the form and dimensions of the orbit. Since that paper was written an extensive literature has been produced setting forth the great variation in the form, size and location of the bony sinuses which lie contiguous to the orbits, their bony walls forming a large part of the limiting walls of the orbits and therefore modifying the shape of this important cavity, designed to contain and protect the eyes.

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\*University Magazine, 1895.

(Read before the Section on Eye, Ear, Nose and Throat Diseases, Medical Society of the State of Pennsylvania, Harrisburg Session, September 27, 1911.)



It is certainly not unreasonable to expect that, during development in an anomalously shaped orbit, not only a great variety of modifications would occur in the form of the eye-balls which would determine their diameters and consequently alter the radii of curvature of the cornea, but that they would, as a mechanical necessity, also lead to change in the length and line of direction of the optic nerves, and modify the origin and attachment, the length and line of direction of the extraocular muscles. It is obvious that a great variety of these anomalous conditions is possible, a fact which readily accounts for the great complexity in observed conditions in refraction errors and abnormalities in binocular balance. It does not seem probable that any law for their definition or management will ever be formulated.

Great assistance in their study and treatment, however, is afforded by a definitely recognized standard for normal binocular vision; indeed, such a standard is essential for the diagnosis and elucidation of anomalous states.

The following may serve for a definition of normal conditions:

*Ideal Relations Will Be Found in Two Emmetropic Eyes With a Normal Acuity of Vision, a Physiologic Range, and Region of Accommodation and Convergence.*

Under these conditions a clear image of an observed object is maintained upon the fovea of each eye from infinity to the binocular near point, without conscious effort, up to the age of beginning presbyopia. In point of fact this ideal condition is observed with comparative rarity; nevertheless the eyes which most nearly approach it enjoy the highest degree of comfort and meet the requirements of civilized life with a minimum of pain and peril. Any departure from these normal relations in one or more of these factors will disturb the harmonious relationship and lead to more or less impairment of function. The resulting symptom complex we designate as asthenopia.

It is worthy of note that this relationship is upset in all eyes by an unavoidable physiologic change, viz., the steady diminution in the range of accommodation as age advances, which culminates in disturbance of function, at the arbitrarily placed age of presbyopia. If neglected, the conditions which ensue furnish us with a simple but significant illustration of the essential nature of more complex conditions to be mentioned later.

The sentient effort made to compensate the failing accommodation can not, beyond a certain point, which probably varies within narrow limits for different individuals, be maintained without disturbing the normal and harmonious relation with the convergence, since both are controlled by a common innervation. For example, in fixing at the reading distance the convergence impulse must remain the same, while with the diminishing power of accommodation a relatively greater impulse is made necessary for the ciliary muscles. The individual must choose between an indistinct and therefore unsatisfactory image at the reading distance or a separate image on the fovea of each eye, that is to say diplopia.

Now, observation has shown that the region through which we can accommodate without convergence is increased by experience. We learn to separate in some measure the focusing power of each eye from the convergence notwithstanding the fact that the two functions are under a common innervation. The practical result is that the eyes are converged to the required point for which each eye is focused, although a relatively greater effort is required for the latter than for the former.

If this effort is persisted in until the age of forty-five years or after even in emmetropic eyes, we find that an interesting chain of phenomena has been introduced. Careful study of the binocular vision at thirty years of age in a patient with the ideal conditions already described will show at six meters, or at the reading distance, complete orthophoria. At six meters there will be an abduction of 6 degrees and an adduction of 18 degrees, or 8 degrees and 24 degrees, the ratio being as 1 to 3. That is to say, abduction and adduction will be equal, about  $2\frac{1}{2}$  or 3 degrees each. At forty-five or forty-seven years of age, if the required reading glasses have been neglected a like study will reveal a marked change in all these conditions.

There is no longer orthophoria at six meters, but with rod and red glass there may be esophoria if asthenopia is marked and is due to a tonic cramp of the accommodation in which the internal rectus muscles participate, but exophoria at a reading distance. If the cramp is absent there will be a slight exophoria at six meters and a higher degree at the reading distance.

The abduction and adduction no longer sustain the nor-

mal relation, the abduction having increased and the adduction diminished, *i. g.*, the abduction may be 10 degrees and the adduction 10 degrees to 20 degrees. That is to say, there will be a relative insufficiency of convergence, growing out of the fact that the individual has learned to use a convergence relatively less than the accommodation required to overcome the diminished range with increasing years. Fortunately, under the use of suitable reading glasses the relation between the two functions is speedily restored in the majority of the patients, but not in all. For example, if the person has deferred the use of a glass until the age of forty-seven or forty-nine years, it is not unusual to have him reject the usual glass for that age, say +1.50 or +1.75 and accept only a much weaker glass; this, for the reason that he does not rapidly recover from the displaced range and region of accommodation and convergence. Indeed, he will reject the glass suitable for his age until the acquired cramp has disappeared.

Now, what takes place in the emmetropic eyes at forty years of age or later occurs much earlier in hyperopic eyes. Indeed, the displacement of the relation between accommodation and convergence begins very early in life and is probably the cause of the asthenopia, quite as much or more than is the existing error of refraction. The pain is due to the effort required to maintain clear single binocular vision. It is interesting to note in this connection that in strabismus we comparatively rarely have asthenopia, even when the error of refraction is high, since binocular vision has been abandoned.

This displacement of the range and region of accommodation and convergence in hypermetropic eyes explains the difficulty we have to induce such patient to wear approximately full correcting glasses as determined under paralysis of the accommodation, since their vision is blurred as soon as the influence of the cycloplegic has disappeared. They have a *relative* exphoria. In correcting this they must employ their accustomed tension of the accommodation which through the glasses gives them a finite far point, hence the indistinct distant vision. The correcting glass removes the necessity for the same tension upon the accommodation to which they have been accustomed. The binocular balance for which they have been trained by experience is lost. The glasses have introduced, for them, a disturbing factor and they must learn the trick of a new binocular balance to avoid diplopia and secure at the same time clear vision.

A careful study will reveal an *exophoria due to a relative insufficiency of the interni*. The ratio of abduction and adduction is not 1 to 3, but 1 to 1 or even less. It is at this stage that adduction exercise with prisms is of such signal service, since it trains the interni to take up the new burden in proper relation to the new and lessened requirement of the ciliary muscle.

There is another group of defective eyes, however, in which the problem is by no means so simple. There is present not only the defect of refraction, as in the preceding group, that is to say, hypermetropia with astigmatism, the two eyes being approximately symmetrically defective, but a far more complex condition. There is, in the cases now to be considered, a higher defect of refraction in one eye than the other, the principal meridians of the two corneas are not symmetrical; that is to say, the sum of their axis measured in linear development upon the arc of a circle do not equal 180 degrees. To illustrate, it will be observed that in the majority of defective eyes with astigmatism the axes of the correcting cylinders will be placed each at 90 degrees or one at 75 degrees and the other at 105 degrees or 60 degrees and 120 degrees, etc., the two, being added, equal 180 degrees. But in the group under consideration this symmetry does not obtain, *e. g.*, one may be at 60 degrees, the other at 90 degrees and so on through an infinite variety. Added to this asymmetry in the meridians, almost certainly if the astigmatism is present in higher degree, or if the total error is much higher in one eye than the other, will be found some more or less complex and, often, perplexing error in binocular balance and in association with it a notable asymmetry in the two sides of the anterior segment of the skull. The head is often habitually tilted to one side, or the chin depressed or tilted upward.

It is in this group of patients that the skill and patience of the surgeon is tried to the utmost. Step by step a careful analysis of existing conditions must be worked out with care, skill and time. The vicious circle of anomalies must be broken through at some point before progress can be made. Experience has seemed to teach that the best procedure is first to remove the power of accommodation for each eye by the use of a strong mydriatic, instilled three or more times daily, day after day, until the irritation and congestion of the fundus oculi have disappeared, when a careful analysis can be made of the

static error of refraction in each eye separately. This secured, the correcting glasses should be placed in some fixed form of apparatus in which they can be carefully centered before each eye, and then a careful determination made of the binocular balance at six meters in the primary position.

The determination accurately of the dynamic power of the horizontally and vertically acting group of muscles, that is to say the abduction, adduction and circumduction are of signal importance in this analysis. For this purpose I am convinced that a fixed form of apparatus and the rotary prisms are necessary for any accurate result. The findings should be referred for comparison to the standard for normal eyes already given. They will be found to conform closely to the findings with a multiple Maddox rod over one eye and a dark ruby glass over the other, but are on the whole more trustworthy.

In the group now under consideration the heterophoria or deviation from standard conditions will be found fixed and not controlled or modified by any form of prism exercise. The patient may be taught how to overcome the defect, but the defect in ocular balance remains and the asthenopia is not relieved.

In this they differ essentially from the first group considered, the *relative insufficiencies*. They depend upon some anatomical fault, some anomaly in one or more of the extra-ocular muscles and I have designated them, in the paper already noted, as *absolute insufficiencies*. In many cases the fault is an abnormal attachment of the muscle to the anterior segment of the globe, and having determined accurately the nature of the fault we are often able either by the judicious prescribing of correcting and prismatic glasses or by operation on the muscle to correct the error in balance and so secure comfort by restoring a normal acuity of vision for each eye and a proper binocular balance.

No operation should be undertaken however, except in very exceptional cases, until the correcting glasses have been worn for many weeks. The paralysis of the accommodation should be maintained until the prescribed glasses have been prepared and carefully fitted or centered. There is a distinct advantage in this procedure since the patient will more readily acquire the desired new range of accommodation and convergence if the glasses are worn constantly during the seven to ten days required for the slowly subsiding influence of the my-



driatic, there being less temptation to go back to the old conditions of strain while looking through the correcting glasses.

In these remarks I have studiously avoided any reference to strabismus or to paralytic affections, the design being to study those patients who, notwithstanding their errors of refraction and faulty binocular balance, are nevertheless able, though with pain or discomfort, to maintain binocular single vision. I have, however, seen many cases in which an actual lateral deviation of the ball takes place, either at will or permanently, which belong in this group of absolute insufficiencies.

In many of these cases, the deviation is allowed by the patient since it avoids in a measure relief from the distressing asthenopia produced by the strain required to maintain binocular vision. It is a curious fact that they do not as a rule acquire amblyopia, which is so common in many cases of converging strabismus. It is therefore possible to measure the ocular imbalance and it will usually be found that a vertically acting muscle is at fault. When this is corrected either by a prism or by operative interference, the tendency to lateral deviation disappears. Indeed, as was pointed out by Dr. George T. Stevens many years ago, in many cases of converging strabismus the determining factor is the existing hyperopia. The same may be said of a large percentage of the cases of esophoria and exophoria, both of which disappear promptly under the correction of the vertical imbalance.

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### THYROID WITH ARSENIC, AND ITS ASSOCIATED INTERNAL SECRETIONS IN DISEASES OF THE EYES.

S. B. MUNCASTER, M. D.

WASHINGTON, D. C.

During the past year I have been prescribing thyroid associated with adrenal and sodium cacodylate in the treatment of some diseases of the eyes with rather remarkable results.

This association of internal secretions is used in a lowered state of nutrition, where the thyroid glands as well as other ductless glands are not properly performing their functions.

In such cases the poisons are taken into the system and find a lodging in those ductless glands, and if not relieved, will be very apt to cause auto-intoxication.

When the ductless glands, especially the thyroid, thymus,

suprarenal capsule, spleen, etc., are diseased or destroyed more work is thrown upon the kidneys, and it has been shown that as a consequence changes result in the kidneys causing albumen and casts. After treatment with the association of substances above indicated it has been found that the albumen and casts have disappeared.

While thyroid alone in large quantities is one of the greatest agents to reduce fat, it is somewhat objectionable on account of ensuing depressing effects on the system, but when it is given in small quantities associated with adrenals and sodium cacodylate that objection is overcome.

"Brown-Sequard's experiments upon himself with thyroid were the first to furnish us with the value of this agent in the treatment of ductless glands."

Of late such eminent physicians as Arnald Lorand, Sajous, Heindrick Sterns, and others, have been giving us the benefit of their wide experience through the medical books and journals with the healthy animal extracts, and they have proven that by associating those extracts with small doses of arsenic, etc., remarkable cures have been effected in systems where ductless glands have failed to perform their duties and where comparatively hopeless cases have been signally benefitted.

I have been using a tablet containing thyroid gland substance, 1 grain, adrenals 1/60 grain and sodium cacodylate 1/200 grain in cases of retinitis pigmentosa, and choroiditis where there were old pigment deposits, and have been surprised at the beneficial effect.

In one case of a Cretin, aged 20, the patient was afflicted with chronic glaucoma of both eyes. I have had her under this treatment for seven months, using sol. eserine sulph. also in the eyes, and have found a very decided improvement not only in the eyes but also in her mental and physical condition.

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## TREATMENT OF DETACHMENT OF THE RETINA.

By G. C. SAVAGE, M. D.

NASHVILLE, TENN.

I have had such happy results in the treatment of three cases of detachment of the retina within the last two weeks. I am inclined to write you about the same. About five weeks ago two cases of detachment of the retina presented themselves in my office within an hour of each other. One case was that of a little girl with double detachment, and the other was that

of a young man in the senior class of Vanderbilt University. To the latter I said, "Go ahead with your examinations (which were then beginning), for I do not think it will make you either better or worse," meaning to imply his case was hopeless as to that eye. Nevertheless, I gave him the iodide of potassium and bichloride of mercury in proper doses, and told him to come to see me every few days. The detachment was at the usual place, namely, below, and his direct vision was at the beginning practically nothing. When he had finished his examinations I said to him that if the liquid separating his retina from the choroid were acid, then I could give him a subconjunctival injection which would produce an exosmosis. I told him that the acidity of this liquid was only a guess on my part, but if he were willing I would give him the injection of the citrate of sodium solution, knowing that it would do him no harm. His reply was, "Go ahead." I found his vision that day equal to 2-100, and total inability to read even the largest print on the Jaeger cards. Under cocaine anaesthesia I injected fifteen minims of a solution of citrate of sodium, twenty-five grains to the ounce. The next day his vision was 4-50, and the quantity of liquid was sensibly reduced, as shown by the ophthalmoscope. Four days later I gave him a second injection, after which his vision continued to improve and the liquid to diminish in quantity. On Wednesday last, two weeks lacking one day, from the first injection, I gave the third injection. Friday his vision was 4-8, and he could read Jaeger, 50 at eight inches. It required a plus six to enable me to see the highest point of the detachment before the first injection. A plus two easily shows the highest point now.

On last Wednesday I gave a double injection to the little girl for the first time. Her direct vision in the right eye was nothing. The vision in the left eye was 4-100. Friday the direct vision in the left eye was 4-50. On the same day Dr. Price brought to my office a man with a detachment of three weeks' duration. The detachment was in one eye only, and the direct vision of that eye was 3-200. In seventeen hours after the single injection the patient had vision equal to 8-30.

Even three swallows can not make a summer, but it does seem to me that there is hope in this line of treatment for these hitherto practically hopeless cases. The fact of exosmosis, brought about by the subconjunctival injection of the solution of the citrate of sodium, makes my guess as to the acidity of the separating fluid appear correct.

## EDITORIAL

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### THE OPHTHALMIC YEAR BOOK.

The editors of the *OPHTHALMIC RECORD* are desirous of doing everything in their power to second the movement originating in the Section of Ophthalmology of the American Medical Association, to resuscitate the admirable publication known as the *Ophthalmic Year Book*. We believe that the arguments in favor of such action, have been clearly stated in the last number of *Ophthalmic Literature*; consequently, we reproduce intact the references to the matter made in that periodical.

"The suspension of the *Ophthalmic Year Book* brought to those who had conducted it many protests and expressions of regret. These are flattering as evidences of the value of the *Year Book*, and should be compensation for much labor otherwise unrequited. There is evidence of a strong desire that this suspension should be but temporary; and that the publication should be resumed without any gap in its digest of the literature of ophthalmology. Before undertaking such resumption serious questions must be considered.

First comes that of the financial deficit. To those who know little about such publications this might seem the most serious. But it ought to be more generally known that most of the ophthalmic periodicals published in English have been published at very considerable financial loss to their projectors and backers; and that very few have ever become financially self-sustaining. In view of this the direct financial loss involved in publishing the *Year Book* has not been unexpected; and should not alone be given as a reason for abandoning a serious undertaking of value and importance to the profession.

But the preparation of the *Year Book* involves an enormous amount of labor. In a way this was understood before undertaking it; but it was not fully appreciated. Only when one came to understand the immense volume of the literature of ophthalmology, the irregular times at which certain journals were issued, the large number of papers appearing in Slavonic and Asiatic languages, to be studied through translations or abstracts appearing in different languages of Western Europe; and the scattering of articles relating to ophthalmology through general medical journals and popular publications, could the extent of the task be known. Furthermore, the la-

bor of preparing the book has fallen on a few workers. Accomplished linguists are less common in English-speaking countries than in Continental Europe. The number of American ophthalmologists who can read with facility the principal languages of Western Europe is small. Among these some have had no editorial training or experience, and several who have been invited to assist in this line of work have felt they could apply their abilities to better advantage in other directions. The fact that at most three or four have shared in the preparation of the *Ophthalmic Year Book*, instead of twenty who do the editorial work for Nagel's *Jahresbericht*, has greatly increased the difficulty of issuing such a publication. Those engaged in it have felt that work in this direction limited their ability to engage in literary work in other directions, which might have been of greater profit to themselves and of equal value to the profession.

But the whole question of a resumption and continuance of the *Ophthalmic Year Book* depends upon the value of the service it renders to the profession at large. Do enough ophthalmologists read and profit by the Year Book to make it worth while? If one-half, or one-third of the English-speaking ophthalmologists of the world did so, there could not be the slightest question about its continuance. But heretofore not more than one-twentieth have done so. The repeated, and emphatic expressions of opinion of the value of the Year Book on the part of editors and students, who know most about the ophthalmic literature of the world, and are making the best use of it, that such a digest of the literature is invaluable; and the offers of individuals to give from two to ten times the subscription price to secure the continuance of the publication, are ample evidence of the value it might have if enough ophthalmologists would take it and use it.

However, not what it might be worth under other circumstances, but what it is actually worth to the profession as a whole, must determine its continuance and permanence. The question has come to be: Can those who appreciate the Year Book, and who are in general the natural and recognized leaders in ophthalmic practice, induce them to make use of this means for professional development and advancement? If this can be accomplished all of us can share in the benefits of such a reference work. If it cannot, we must wait until a better-trained and better-organized profession will appreciate such an aid to increased efficiency and will take steps to secure it.



A practical movement to interest a larger number of those engaged in ophthalmic practice in the literature of their specialty has been inaugurated by the committee in charge of the Knapp Testimonial Fund of the Section on Ophthalmology of the American Medical Association. This Committee has proposed, and the Section has approved, the plan of supplying to each contributor to the Testimonial Fund a copy of the *Ophthalmic Year Book*, and also a copy of the Section Transactions. If a sufficient number of contributions of sums of five dollars each, or upward, can be secured, it will be possible to do this and still have a portion of the fund to devote to the other purposes for which it was formed—the awarding a medal for the best contribution to the interest and success of the section meetings.

Most scientific societies undertake to supply their members with their published proceedings. Many attempts have been made through a presidential address, or the report of a special committee appointed for the purpose, to give each year some account of the important advances made in ophthalmology. An organization that would annually lay before all its members a digest of the world's ophthalmic literature would render them a unique service, and achieve a correspondingly high position among scientific societies.

This has not been attempted by the Section of the A. M. A. because its method of organization renders it impracticable. It could not be done for all members of the A. M. A. who might choose, once in five years, to register as members of this Section.

But if the attempt on the part of the Committee meets with proper support, a large proportion of American ophthalmologists will get the benefit of this service. In that case we may fairly expect a renewed professional interest, greater scientific activity and higher literary standards will arise among the ophthalmologists so influenced."

We trust that every subscriber to the OPHTHALMIC RECORD will send his name to the Committee in charge of the Knapp Testimonial Fund and that he will use his influence to circulate the Year Book amongst his friends."

## REPORTS OF SOCIETIES

### PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

MEETING OF APRIL 11, 1912.

DR. WENDELL REBER IN THE CHAIR.

Dr. George Derby, of Boston, Mass., spoke by request on "The Treatment of Tuberculosis of the Eye." About 4 or 5 years ago we established a class for the treatment of tuberculosis of the eye at the Massachusetts General Hospital. We have a large clinic and get a number of cases, so that it is worth while having a special organization. We have perhaps 15 patients in the active stage of the disease coming at a time. We have handled 140 cases since starting 4 years ago. The manner in which the class is run does not differ from the ordinary tuberculosis class. The cases are referred to us from the various clinics, some times with a diagnosis and sometimes without a diagnosis. We then send them to the hospital and observe them. They are given the tuberculin test and watched for reaction in the eye. Having made the diagnosis the patient is registered in the class. The case is treated by the general medical man and an ophthalmologist. A Social worker looks after the patient out-doors. We have a nurse who weighs the patient. In acute cases we insist on their keeping out-doors most of the time and some of them sleeping there. The most severe cases are not very satisfactory to treat at home and during the last two years we have treated them at the hospital. Sometimes we send them to a sanatorium.

Those that are treated at home are made to keep a book and state in it how many hours they are out-doors and how much they eat. They take their own temperatures and record that in the book. Very few of these patients run a temperature. We make them take an extra amount of nourishment.

I think tuberculin should be used very carefully indeed. We use a filtrate using ordinarily, about 5/10000 of a mm, watching their general symptoms and taking their temperature. We have had somewhere around 140 cases and the results have been very satisfactory.

*DISCUSSION.* Dr. Posey asked if they had many negroes in this class, as he believed that tuberculosis of the eyes was

particularly common among the negroes; that the worst cases he had ever seen were among them.

Dr. Derby said they had had a colored man with tubercular conjunctivitis and a colored boy with phlyctenulosis.

Dr. William Campbell Posey, "Miotics in the treatment of Chronic Non-Inflammatory Glaucoma."

Dr. Posey said that he continued to be impressed with the value of miotics in the treatment of glaucoma, although he wished to caution against their permanent employment in any but the non-inflammatory forms of this disease. To obtain good results from miotics, they should be used four times daily without interruption, the pupil being maintained at almost pin-point contraction the entire time. Conjunctival irritation should be avoided by carefully and repeatedly cleansing the conjunctival sac with boracic acid lotion 15 minutes prior to the instillation of the miotics and by exercising great care in the preparation and renewal of the drugs, nothing but sterile solutions being used. Droppers should be repeatedly boiled and at all times kept perfectly clean. It was well to employ but weak solutions of pilocarpine and eserine at the commencement of the treatment, to avoid spasm of the iris and ciliary muscle, pilocarpine grain  $1/5$  to the ounce being first employed and the dose gradually strengthened until at the end of 12 months the pilocarpine was used in a strength of 2 grains to the ounce, eserine in half that dosage. It was his custom to employ pilocarpine through the day, but to make the final dose at bedtime eserine. If miotics were used in this way, their effect upon the conservation of vision was remarkable, and recent observations had confirmed his original studies that no form of operation equalled the results obtained by their use in chronic glaucoma.

*DISCUSSION.* Dr. Zentmayer said that there is a large class of patients in which it was manifestly impossible to carry out a line of treatment that required the constancy and care called for in the miotic treatment. This applies particularly to dispensary patients and except in those well advanced in years this method has no place. He would advise operative treatment in an individual under 50 years of age in any station of life because it is too much to expect any one to persist in such discipline for the rest of his life. In some cases, however, where iridectomy is impossible or where from the nature of the visual field it

would seem hazardous to perform it, the miotic treatment would be indicated in the aged, or cyclodialysis in younger individuals. Of the filtration operations he prefers the La Grange. It requires no special instruments, gives a large cicatrix and the incision is so placed that it opens up the angle of the anterior chamber and also communicates with the suprachoroidal space.

Dr. Reber: I can only repeat several things that were brought out in the class yesterday. There are three phases of glaucoma. The first class is the one that frankly calls for operation and we have only to decide what operation shall be done. The second class does well on miotics. Thirteen years is the longest I have ever had a patient keep up the use of miotics. Hers was one of the few cases I have known where the patient really will be careful all the time in the use of the miotics. The third class is made up of the doubtful cases of non-inflammatory glaucoma with gradually diminishing vision and slowly contraction visual fields. It is one of the nicest points in surgical judgment to determine sometimes whether such cases shall take the risk of operation. If operation is decided on my preference would be for some form of trephine operation.

Dr. Reber presented two cases of ptosis in whom the Hunt Tansley operation had been done—one in a bilateral ophthalmoplegia externa and one in a post-traumatic ptosis. In both the results were particularly good. He briefly reviewed the history of the operation and stated his preference for the method mentioned.

Dr. Zentmayer: "Do you denude the cutaneous flap of its epidermis?"

Dr. Reber: "Yes."

D. FOREST HARBRIDGE, M.D.,  
Secretary.

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### PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

MEETING OF MAY 9, 1912.

DR. WENDELL REBER IN THE CHAIR.

Dr. Max R. Goepf, "General Manifestations of Arteriosclerosis."

Arteriosclerosis may be classified under two general heads, mechanical and toxic. Arteriosclerosis is attributed to hard

work, either manual labor or brain work, associated with worry. Men are more subject to arteriosclerosis than are women and the overindulgence of many men, in both eating and drinking and also in working, are contributory causes to this condition.

That arteriosclerosis is brought about by toxins in the body is a proven fact but just how this condition comes about is not clearly defined. There are the two forms of arteriosclerosis, senile and diffuse, to which may be added the nodular form of Councilman.

As one of the clinical manifestations mention was made of a feeling of tingling and numbness of the extremities, formication, particularly in the arms and hands. The dizziness which is so commonly observed in arteriosclerosis may be the direct effect of cerebral anemia, due to degeneration of the cerebral vessels, or a secondary result of the digestive disturbances which are quite commonly present.

The brachial artery is the least frequent artery to be affected.

Medicine owes a debt of gratitude to the ophthalmologists for the development of the study of the retinal vessels, which is so valuable in the study of the early diagnosis of general arteriosclerosis. The great advance in the study of the blood pressure has been a contributory factor in the study of arteriosclerosis also. It is by means of the diastolic pressure that we are able to separate the ventricular from the vasomotor actor, and therefore correctly determine to what extent the blood vessels alone are responsible for the hypertension.

The normal pulse pressure, that is the difference between systolic and diastolic readings, (which represents the force of the ventricular contractions) is equal to from 40 to 50 or 55 mm. of mercury. A reading in excess of this indicates cardiac hypertrophy; while pulse pressure below 40 mm., should at least arouse the suspicion of cardiac insufficiency.

In his summary of the various forms of arteriosclerosis, he described:

1. Renal: The association of chronic interstitial nephritis and general arteriosclerosis is so common that one generally suggests the other. Patients suffering from typical chronic Bright's disease practically always present the signs of arterial degeneration. These patients are particularly prone to apoplexy from hemorrhage or thrombosis.



2. The Cardiac Form presenting the picture of myocarditis and cardiac asthenia, or that of angina pectoris or both.

3. The Cerebral form, with special localizations presenting symptoms of cerebral anemia and more gradual destruction of brain tissue. It should be remembered that epilepsy developing late in life may be a manifestation of cerebral arteriosclerosis.

4. Arteriosclerosis of the extremities which is most commonly observed in laboring men.

5. Emphysema and bronchitis with arteriosclerosis of the pulmonary artery and hypertrophy especially of the right ventricle, also seen chiefly in the laboring class.

6. Mesenteric form.

Dr. D. Forrest Harbridge: "Ocular Manifestations of Arteriosclerosis."

Truly grave vascular changes may be present, but lacking subjective evidence, thus escaping observation unless perchance the patient consults the physician for some other intercurrent condition. It however does not necessarily always follow, that because we have vascular disease of one system of vessels, that all others in the human economy are similarly involved.

For clinical purposes we may conveniently arrange vascular disturbance manifesting itself in the eye, as affecting external parts; subconjunctival hemorrhage, paresis extraocular muscles due to intercranial hemorrhage secondary to arteriosclerosis, those conditions resulting from the pressure of a sclerosed vessel upon the optic nerve or other delicate structures. As affecting internal parts; the circulatory system of the fundus. All impair more or less seriously the function of the eye, and act as a strong index to the welfare of the general economy.

Regarding the earliest evidences which are strongly suggestive of vascular change, is the presence of corkscrew retinal artery twigs, particularly out toward the macular region, a dull red nerve head, flattening of the veins at artery crossings, sluggish pupillary reaction, early failure of accommodation, partial or complete senile circle in the cornea, persistent headache in spite of careful refraction, particularly at the beginning of presbyopia, and a history of more or less frequent attacks of gastric or bronchial disturbances which make the patient really sicker than the conditions would seem to warrant.

The pathognomonic evidence of arteriosclerosis presents all or at least many of the following conditions. Change in course, size, and irregular caliber of the arteries and veins. The latter being indented at artery crossings. Altered vascular reflexes, such as more brilliant central light streak (silver wire artery), undue fullness of the perivascular lymph sheaths, paleness of the vessels. In more advanced cases a few faint hemorrhages. Retinal haze, more marked about nerve head.

*DISCUSSION.* Dr. Posey said that the importance of a careful examination of the fundus could not be overestimated in the consideration of all cases of vascular sclerosis. He would refer, however, to but one phase of the subject, one to which he had first called attention in 1902, namely to transient monocular blindness in consequence of changes in the walls of the retinal vessels. In cases exhibiting this symptom the attacks of blindness usually lasted from 10 to 15 minutes but he had observed one case where the blindness had persisted, though with intervals of remission, for five or six hours. While at the time of the attacks, there were all the signs of retinal ischaemia, the retina regained its normal appearance after the blindness had passed. He was convinced that many cases of permanent blindness which in earlier years had been attributed to embolus of the central artery of the retina, were really of a thrombotic nature, or perhaps due to a mere spasm of the walls of the artery and cited the classic case of Lebers, in which there were all the ophthalmic signs of embolus, but in which the microscope failed later to reveal any evidence of either embolism or thrombosis. Dr. Posey said, however, that in spite of this experience, he was of the opinion that changes in the intima of the vessels must in most cases be the exciting cause of the spasm. He dwelt upon the prognostic forecase, not only for vision in the affected eye, but also as regards the life of the patient, and said that while vision might be maintained for many years in eyes the seat of even repeated attacks, that final blindness was to be dreaded on account of the thrombotic changes. Several of the patients whom he has observed had died some years later from vascular disease of the brain. He would, therefore, insist upon a treatment and a regimen to control arterial sclerosis in all cases.

Dr. Zentmayer recalled the remarkable case of spasm of the central artery of the retina reported by Dr. Harbridge, through

whose courtesy many of the ophthalmologists of Philadelphia had had the opportunity to witness the cycle of events connected with this phenomenon, namely the gradual extinction of the arterial circulation accompanied by a loss of vision and dilatation of the pupil followed after a varied period of time by a return of the arterial circulation, a restoration of vision and contraction of the pupil.

In connection with the retinal manifestations of arteriosclerosis he thought more emphasis should have been placed on the fact that the irregularity in the calibre of the vessels was much more pronounced in the veins and that not only was the light streak on the arteries more brilliant but could be treated much farther out from the disk than normally and that local edema was often present at a point of crossing of an artery and a vein.

The red "hot eye" was frequently seen in arteriosclerosis especially in the presence of a gouty diathesis. A persistent asthenopia was often associated with arteriosclerosis. Optic atrophy accompanied by a loss of the superior or inferior half of the field had been attributed to pressure of the hardened ophthalmic artery upon the optic nerve causing it to be further compressed by the dural sheath at the optic foramen. Other types of a atrophy due to arteriosclerosis within the nerve trunk might also be mentioned.

Dr. John H. W. Rhein referred to arterial changes as related to the nervous system and said that the hemorrhagic disturbances constitute but one symptom which is seen in arterial change within the brain. There is mental sluggishness, trembling at atrophy of the muscles. He spoke of attacks which quite frequently result from changes in the central arteries. The face is flushed, patient often falls to the ground but never loses consciousness. These attacks are due to anemia of the brain, as Dr. Goepp has suggested.

Dr. Peter said that angio-spasm of the central artery of the retina, or its branches, to which reference has already been made, I believe when present is one of the earliest manifestations of the disease. It is also frequently observed after the arterio-sclerotic process is well under way. I have observed it in three cases, 20, 22 and 26 years of age, as an isolated symptom. In each instance there was a systolic blood pressure of 170 mm.

Several years ago I had the opportunity of studying several hundred cases and incorporated them in a paper, including for purposes of comparison nine cases of syphilitic neuro-retinitis and three cases of parenchymatous nephritis. The average blood pressure in the various conditions was as follows:

9 cases of syphilitic neuro-retinitis.....	132mm.
3 cases of parenchymatous nephritis .....	132mm.
(No ocular manifestations.)	
26 cases retinitis, asterosclerotic in origin.....	165mm.
49 cases of neuro-retinitis due to same cause.....	185mm.
6 cases hemorrhagic retinitis due to same cause....	205mm.
3 cases of so-called albuminuric retinitis.....	190mm.
3 cases nephritic papillitis .....	225mm.

When taken collectively, this study in so far as it goes shows a more or less definite relation between the high blood pressure and the severity of the ocular manifestations.

Dr. Reber called attention to the fact that the walls of the retinal vessels are of the same index of refraction as the retinal structures itself and that because of these things we become conscious of the walls of the vessels only when they are diseased. In studying vascular changes in the retina, it is not sufficient to simply inspect the optic nerve head and then swing the light axis out into the macula. The retinal crossings which display the more marked characteristics of angio-sclerosis are generally located anywhere from  $1\frac{1}{2}$  to 2 disk diameters away from the edge of the disk. It therefore requires considerable search and study to recognize such changes correctly. The five signs laid down by Alleman some years ago are good today; namely, the brick red hue of the nerve itself, the twisted little macular vessels; the broadened light streak producing the so-called silver wire artery; the varying contour of the veins, and particularly their alteration in caliber and course where crossed by the arteries. These are the signs that should be particularly looked for, as they are most likely to occur with the pre-pressure of the pre-nephritic stage. In the presence of established vascular change we cannot accomplish much. The great need now is for correlated study of these earliest signs and the co-existent general blood-pressure. Naturally patients with such changes in their intra-ocular vessels are asthenopic as Dr. Zeigler has pointed out. The ciliary body is made up of muscular fiber and blood vessels and even slight sclerosis of the blood

vessels of the ciliary body will theoretically at least, reduce the power of accommodation.

Dr. Goepp said he was impressed with the precision with which the ophthalmologist could make his examination. The interesting question is, which is prior, the changes in the retinal vessels or our own observation of the blood pressure?

Dr. Harbridge drew attention to the experiments upon rabbits which were hung up by the hind legs for varying periods of time. Angio-sclerotic changes were noted that seemed to bear direct relation in their development to the time and length of suspension. He also referred to his own classic case of spasm of the retinal vessels, occurring while under ophthalmic examination.

D. FORREST HARBRIDGE,  
Secretary.

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## COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF APRIL 20, 1912,

DR. GEORGE F. LIBBY PRESIDING.

### **Extensive Corneal Opacity.**

Dr. David A. Strickler presented a case of extensive corneal opacity following a corneal ulcer with a view to obtaining opinions as to best mode of treatment.

*DISCUSSION.* Dr. Walker thought there was more or less keratitis of an interstitial nature going on at present. Would use hot applications, solution dionin and alteratives.

Dr. Hilliard would use the dionin in powdered form and give K. I. internally.

Dr. Coover would perform a peridectomy as some blood vessels had already formed and treat with dionin.

Dr. Jackson did not think there was any active keratitis and would make an iridectomy.

### **Bilateral Posterior Polar Cataract.**

Dr. H. R. Stilwill presented a case of bilateral posterior polar cataract with slight choroidal changes in an adult. Patient was unable to carry on his present work and case was presented for suggestions as to treatment.

*DISCUSSION.* Dr. Neepor suggested a mild mydriatic, such as euthalmine, to be used regularly by patient, and over as long a period of time as no contraindications arose. Had two inoperative cases on weak homatropine solution.



### Two Cases of Gummata of the Iris and One of Plastic Iritis Treated With Salvarsan.

Dr. David H. Coover reported two cases of gummata of the iris and one of plastic iritis treated successfully with salvarsan. Case No. 1: Mrs. G., age 55, widow. Gave no history of a primary lesion. R. E. began to trouble her about the middle of March, 1912. First seen April 7, 1912, at which time examination showed a hazy cornea, pupil contracted and movement

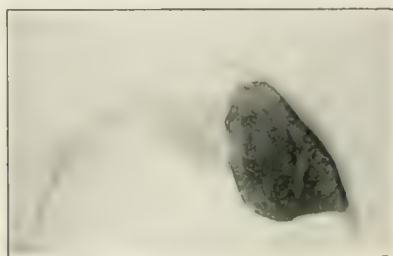


Fig. 1

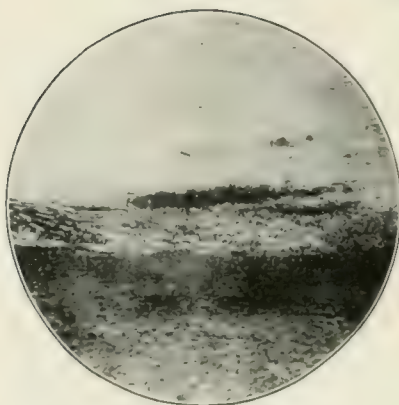


Fig. 2

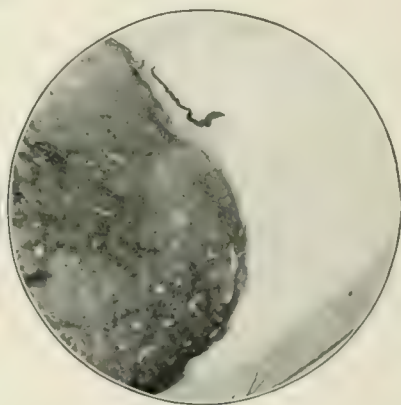


Fig. 3

Fig. 1. Small Spindle Cell Sarcoma of the Ciliary Body. (Coover.)

Fig. 2. Small Spindle Cell Sarcoma of the Ciliary Body. (Coover.)  
Growth Projecting Into the Anterior Chamber. (Coover.)

Fig. 3. Small Spindle Cell Sarcoma of the Ciliary Body. (Coover.)  
Sarcoma Cells Infiltrating the Cornea and the Sclera.

sluggish; marked ciliary congestion; slight tenderness on palpation; iris swollen and of a muddy color. On the superior and outer quadrant of the iris near the ciliary border a gumma 3 mm. in diameter was distinctly seen. Patient reported having had similar trouble in both eyes two years ago. Was tak-

ing no medicine. Wasserman positive. April 9, 1912, salvarsan was given intravenously. Patient complained of feeling very uncomfortable for twelve hours following the injection. Pain and redness increased in the eye and lasted during the entire period. From this time on pupil was more easily dilated with the atropin and there was a continual improvement. Vision increased from fingers to 6-40 and at the end of two weeks the gumma had entirely disappeared.

Case No. 2: Miss M., age 25 years; gave no history of a primary lesion. About the 1st of November, 1911, had marked secondary symptoms of lues, skin rash, falling out of the hair, slight temperature and marked anemia. The following treatment was given her by her family physician: Mercury hypodermically once daily, sodium cacodylate twice a week and Bland's pills. His treatment was continuous during November, December and January. During the latter part of January she developed trouble in the left eye. At this time examination revealed a plastic iritis with vitreous opacities. Atropin and daily mercurial inunctions were ordered, but the eye remained irritable. Case was not seen again until April 1st, at which time she had three distinct gummata on the pupillary edge of the iris, and vision was reduced to light perception. Salvarsan was advised and given intravenously on April 3d. The next day the eye was more congested and somewhat painful. These symptoms subsided within 24 hours and the pupil responded more promptly to the atropin. As in case No. 1, the gummata gradually disappeared, the eye cleared up, and at the end of two weeks there was no sign of the growths. Vision increased from light perception to 6-20.

Case No. 3: Mrs. D., age 53; widow. March 26, 1912. Denies having had syphilis, but gives history of a secondary eruption on the body. Complains of pain in the eyes and over eyebrows. Pupils small; react to light poorly; irides muddy in color and swollen. Undergoing no constitutional treatment. Diagnosis: Specific iritis, Wassermann, positive. April 3, 1912, salvarsan was given intravenously. As in cases 1 and 2, patient felt very uncomfortable for twelve hours following the injection and the eyes became more congested and suffered considerable pain in them. In forty-eight hours there was less congestion and pupils reacted more promptly to atropin. At the end of ten days rash had disappeared and eyes to all appearances were well.

The main points of interest were: First, that cases 1 and 2, who had been given no mercury, did equally as well as the one who had—in fact, the gummata appeared in case 2 while she was under mercurial treatment. Second, that in each of the cases forty-eight hours after the salvarsan was given the pupils responded more promptly to the atropin than they had done previously. Third, that all three were ambulatory cases, the salvarsan being given and then the patient allowed to go home.

**DISCUSSION.** Dr. Patterson said that in his experience salvarsan gave quicker results in specific eye lesions than any other anti-syphilitic treatment.

Dr. Jackson said he had seen case No. 2. Iris had a distinct reddish color, and he was impressed by the large size of the gummata. Very shortly after the salvarsan was given there was a noticeable decrease in their size.

Dr. Bane wished to know if more than the one dose was given in each case.

Dr. Hilliard would follow up with mercury.

Dr. Neeper thought that with salvarsan it was best to wait a month before giving the second dose and in the meantime repeat the Wassermann. Would follow it up with K. I. for the latter's eliminating qualities, thus tending to prevent the toxic effect of the salvarsan.

Dr. Crisp thought the ambulatory cases suffered no ill effects from taking the injection under such conditions.

Dr. McCaw was of the opinion that the reason mercury did not bring about a cure in many specific lesions was on account of its not being pushed to the full physiological limit.

Dr. Coover said only the one dose of salvarsan was given in each case and mercury was being used in all of them at the present time.

#### **Small Spindle Cell Sarcoma of the Ciliary Body.**

Dr. Coover also reported a case of small spindle cell sarcoma of the ciliary body in a woman sixty years of age. Patient was first seen July 6, 1911. About two years previous had noticed a dimness of the right eye, which gradually became worse until vision was reduced to light perception. Eye was watched for a year by an optician, who made a diagnosis of cataract. At this time was suffering some pain. Had suffered none previously. Attack lasted about 24 hours and eye ball hurt her when she pressed on it. Examination showed T plus 1 with

some congestion of the ciliary region. A dark brown growth lay in direct contact with the anterior surface of the lower half of the iris. It appeared to come from behind that structure and extended upwards to the edge of the pupil pushing the lens backward. The lens was opaque. The growth measured in situ 8 mm. at the base and 6 mm. at the apex. Diagnosis: Melanotic sarcoma. Enucleation was advised and performed four days later. Dr. Francis Lane of Chicago examined the specimen microscopically and reported it to be a small spindle cell sarcoma, originating from the ciliary body. No remnant of this structure or the root of the iris escaped destruction, except a few blood vessels. The dark color of the tumor was due to the presence of large masses of haematogenous pigment.

*DISCUSSION.* Dr. Sisson had seen the eye previous to operation and had read the pathologist's report. He considered the case a classical one and in view of the rarity of sarcoma of the ciliary body, only about 50 having been reported, one of extreme interest.

#### **Paralysis of the Third Nerve.**

Dr. Edward R. Neepor reported a case of complete paralysis of all the branches of the third nerve following an injury sustained by falling from a bicycle. Paralysis was immediate. Examination showed the presence of a distinct notch at the junction of the frontal process of the malar bone with the external angular process of the frontal bone as if the two had been separated at this point and as far as could be ascertained by digital examination it appeared that the separation continued along the line of the suture between the frontal and malar bones. Felt sure there must be a fracture of the bones at some point possibly involving the sphenoidal fissure at the apex of the orbit with resultant injury to the nerve. Would like to know if in this class of cases it would be possible by incising the soft parts to reach the bony walls and replace the broken fragments, and if such an operation had ever been performed successfully.

*DISCUSSION.* Dr. Coover was inclined to think the paralysis due to a hemorrhage and that it would disappear in time.

Dr. Walker said in this class of cases he always made it a point to get the direction of the blow and then made deep pressure on the structures in the opposite direction. Felt sure he had obtained results in some cases by this method. X-ray would be an aid in diagnosis.

**Enucleation of the Eyeball Followed by Profuse Hemorrhage.**

Dr. George Libby reported a case in which he removed an eyeball that had been blind for forty years following an injury. Profuse hemorrhage accompanied the enucleation. Examination showed localized arterio-sclerosis and the lens was found to be completely calcified.

**Fragment of Dynamite Cap Imbedded in the Iris.**

Dr. E. O. Sisson reported a case of a piece of dynamite cap embedded in the iris. The interesting feature of the case was that while it appeared to simply lie in contact with that structure, it was found upon removal to have a hooked process on one end, which had imbedded itself in the tissue of the iris like a fishhook in the skin. As the result of this, in removing it an extensive iridodiolysis was produced. The fragment measured 2 mm. by 5 mm. Fair vision was preserved.

**Exhibition of New Appliances.**

Dr. Edward Jackson showed a new trial case designed by him (see Ophthalmic Record) and Dr. D. H. Coover a new electric operating lamp possessing a maximum amount of light with a minimum amount of heat.

ELLET O. SISSON, Secretary.

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**ST. LOUIS MEDICAL SOCIETY.****OPHTHALMIC SECTION.**

FEB. 7, 1912.

**A Simple Lacrymal Syringe.**

By Dr. W. E. Shahan.

This syringe consists essentially of an ordinary dropping tube into the end of which is fused a piece of platinum tubing. The platinum, or platinumiridium, can be obtained from most drug stores in the form of hollow needles of various sizes for use as hypodermic points. These can be cut into lengths suitable for lacrymal syringe points by means of a fine file. With the same file, or with an oil stone, the end of such a point can be dressed down to any desired degree of sharpness or bluntness for entering the canaliculus. This is then fused into the small end of an ordinary glass dropping tube which carries on its large end a rubber cap or bulb.

The co-efficients of expansion of platinum and glass are



so nearly alike that the two materials adhere readily and firmly together and the glass is not cracked nor the platinum broken away from it by inequality of expansion during rapid changes in temperature as in boiling.

With these simple materials any one can supply himself with a series of neat, efficient syringes which are easily sterilized, always ready for use, easily manipulated and of very little expense. Such syringes can also be used for irrigating the anterior chamber where that is desired after certain operations, or in injecting fluid into the accessory nasal cavities or, with very sharp points, for making sub-conjunctival injections, etc.

*DISCUSSION.* Dr. Loeb: I would like to ask if boiling the syringe does not destroy the elasticity of the rubber bulb.

Dr. Ewing: I have used the syringe myself for some time in place of the one that, as some of you may remember, I suggested a number of years ago. It is more easily controlled than those with a piston. The ease with which it may be sterilized is a valuable consideration. I have found it very reliable and with the finer points there has been no trouble in entering the smallest canaliculus with it.

Dr. Gross: I saw the syringe that Dr. Shahan devised a couple of years ago, with a gold point and glass, and after some little experimentation I succeeded in making some for myself and have used them ever since and I would not want to be without them. I found them very satisfactory. I find that I can sterilize them very well in strong carbolic acid and other solutions and have not found it necessary in that way to boil them. Even with a gold point I find they are very satisfactory and I should think with a platinum point they would be even much better.

Dr. Green: Dr. Shahan was kind enough to give me one of these syringes and I have used it on one or two occasions and found it very satisfactory. I have been using the ordinary Dunn syringe, and Dr. Shahan's device, in its easy manipulation and general lightness, resembles this syringe very much. Dr. Shahan mentioned the possibility of using a syringe of this type in irrigating the anterior chamber. Last September I saw, at the New York Eye and Ear Infirmary, a glass syringe with a delicate curved tip for irrigating the anterior chamber, and it struck me at the time that that was too fragile an instrument to use under those circumstances. I could readily imagine that a sudden turn of the eye might break off that

glass point in the anterior chamber. Now, if you had a metal or platinum point, that danger would be eliminated.

Dr. Jennings: I am sorry I did not hear all of the doctor's paper. Some years ago I discarded the use of the ordinary lacrymal syringe as being too clumsy and now use an ordinary hypodermic syringe with a special olive pointed tip. It strikes me that this point is rather sharp and you might make a false passage with it. Often when there is a stricture at the top of the nasal duct I find it is a great advantage to put the tip of my syringe into the lacrymal sac and even into the duct. In ordinary cases, however, I can see that this syringe has many advantages over the usual type of lacrymal syringe.

Dr. Shahan, in closing: With regard to the boiling of the syringe, of course the rubber caps are subject to the usual heat restrictions. But these can be boiled a number of times without harm. When one has been used until it fits too loosely, throw it away and put on another. As to their fragility, they will stand enough force to permit of the insertion of point into the tissues. With regard to the tip being too sharp, that is possible with some of these I have here this evening. Platinum is rather soft and it is an easy matter to vary the sharpness or the bluntness of the point to suit varying tastes and conditions. This is done with a fine file or oil stone.

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### **Implantation Operations as Substitutes for Simple Enucleation of the Eye.**

Dr. John Green Jr.

The paper discussed various methods recently proposed as substitutes for simple enucleation of the eye. All aimed to secure a more solid basis for the glass eye, so that it might have more prominence and a greater amplitude of lateral and vertical motion.

In Mules' operation, a glass sphere is sutured into the eviscerated scleral cup. In successful cases the cosmetic result is excellent. Fear of sympathetic disease has prevented the general adoption of this method.

Within the past two years operators have sought by implanting various substances, solid and semi-solid, into Tenon's capsule, to create a more or less prominent stump. Efforts in this direction have been along two lines: (1) the implantation of solid balls (mainly glass, gold, or platinum) or (2) the implantation of fat tissue into Tenon's capsule.

The Frost-Lang operation (implantation of a metal ball in Tenon's capsule) is strongly advocated by Sweet, who is convinced that the danger from sympathetic disease is insignificant. Motility of the prosthesis is remarkably good, measurements of the arc of rotation of the artificial shell in 12 cases showing an average upward rotation of 23 degrees, downward of 40 degrees, inward of 12 degrees and outward of 19 degrees.

Schmidt performs a typical Mules' operation, but substitutes for the glass balls, spheres cut from the femur heads of oxen, which have been calcined over a Bunsen burner.

Fat implantation was first suggested by Barragner in 1901. Recently Marx, experimenting on rabbits, eviscerated and filled the scleral cavity with fatty tissue. Subsequent histologic examination showed new vessels penetrating the fatty tissue, associated with the formation of young connective tissue. Eventually the fat cells disappeared, but fat and necrotic tissue remained for a long time in the cavity.

Lauber has implanted fat in Tenon's capsule on 37 occasions. A suitable piece of fat obtained by making an L-shaped incision in the abdominal parietes is placed in Tenon's capsule, which is closed by catgut sutures. The recti tendons are approximated and the conjunctiva closed with interrupted silk sutures.

Terrien and others have had considerable degree of success implanting the eye of a rabbit in Tenon's capsule according to Frost's method. Another suggestion is that of Haseltine, who implants a ball made of catgut.

The various implantation methods outlined above, uniformly provide a good bed for an artificial eye. Occasionally the cosmetic result is so perfect that it is difficult for the casual observer to tell which is the natural and which the artificial eye. Cases of sympathetic disease have been reported after these procedures, but in no case is it certain that the sympathetic trouble might not have arisen, even after a simple enucleation.

**DISCUSSION.** Dr. Shahan: I would like to say, with regard to the selection of material for implantation as Dr. Green has indicated, it is very difficult to know just what is best. It is well known that glass, after prolonged contact with even weak alkalis, such as the lacrymal secretion, slowly becomes eroded and if the commonly experienced extrusion of glass balls in the past has been due to irritation of surrounding tissues by such an eroded surface, then the greater security of implantation provided by the Frost-Lang operation will post-

pone but not obviate the ultimate extrusion of the glass ball. Happening to be in Wiesbaden in 1909, one of the Muellers, who was extending me the courtesy of explaining the technic of glass eye making, volunteered the information that of all glass globes he had known of being implanted, only one was still doing service after fifteen years, and others had been extruded. On theoretical grounds, it appears to me that paraffin, particularly the harder varieties, might offer more promise of permanency and freedom from mechanical irritation than glass.

Dr. Shoemaker: Dr. L. Webster Fox told me he had formerly used the glass balls but that he was not satisfied with the results so he discarded the use of them entirely and for some time had been using gold balls. He has used the gold balls in quite a large number of cases and he is very much in favor of the operation with these balls. He thinks it gives a much better result. Personally, I see only one advantage in it and a number of disadvantages. The advantage is that it does prevent the sinking of the upper lid which is noticed sometimes when the globe is enucleated. The disadvantages that I see are, in the first place, it makes a much more difficult operation and in the second place you cannot use a reform eye, but have to use a shell eye over a ball of that kind, and the shell eyes having sharper edges are more irritating than the reform eye, and moreover they are much more easily broken. I can see a decided advantage in the use of a ball implanted in Tenon's capsule, as this is where we limited the use of a shell eye, as it has a cavity in the back of the shell which becomes filled with tears and certain movements of the eye will cause the tears to gush out over the cheek, which is very annoying. With the reform eye the cavity is much smaller. I do not know that we get any better motility with the implanted ball than without it, although Dr. Fox seems to think that we do. However, I have seen just as good motility with the reform eye without the implanted glass ball back of it as we have in most cases with it.

Dr. Woodruff: I suppose this is hardly the time to discuss the advantages of evisceration over enucleation. I would like to relate an experience I had with a gold ball that had been implanted some fifteen years previous to the time I saw the patient. There was plainly a sympathetic irritation set up in the fellow eye which promptly subsided when I removed the gold ball. It was somewhat rough but I think that was in the making and not as a result of the secretions acting on the ball.

It seems to me that if we put a reform eye over the muscles as they are naturally inserted instead of putting in sutures, we will get a better adaption of the reform eye to the muscular insertion, and I believe will get better motion than we could with these implantations. The added risk of inserting a foreign body in the capsule is to be taken into consideration. The patient has but one eye and I think there is greater danger of irritation and inflammation when a ball has been inserted than when it has not, and a patient with one eye can not afford to take such chances.

Dr. Shahan: I would like to ask Dr. Woodruff, with regard to this last case, whether there was tenderness or inflammation around the ball at the time the inflammation started in the other eye.

Dr. Woodruff: Yes, there was.

Dr. Loeb: About two years ago quite an extensive article appeared in French, by Dr. G. Bonnefón, which went very extensively into the question of implantation of foreign bodies in Tenon's capsule. He divided it into three divisions, first those of foreign bodies of the character of metal; second, of the character of sponge, etc.; and third, foreign bodies consisting of actual living tissue. The first he discarded absolutely as he said that sooner or later they always come out, and the second also were not of value because they were more or less absorbed and the stump shrank so that the prosthesis did not get any better support than if a simple enucleation had been done. The third, the implantation of a rabbit eye in Tenon's capsule, according to the method first used, was also a failure for the reason that the cornea sloughed and the eye, acting as a foreign body, came out. Then the idea of turning the eye-ball around so that the cornea, instead of facing forward, faced backward, was adopted and by suturing the recti muscles over this and then the conjunctiva over that uniformly good results were obtained. The stump always remained in situ, there was never any sympathetic ophthalmia and the results were very good. I have had no experience with this, but the first time a suitable case comes up, I shall use the method.

Dr. Green, in closing: I am not in a position to take sides on this question, one way or another. I feel that if we can, with safety to the remaining eye, produce a better cosmetic result with greater motility of the artificial eye, we ought to do it. In regard to paraffin implantations, the experience of Dr. Chas.



N. Spratt might be of some interest. Some years ago, Dr. Spratt wrote a paper on the basis of his experience and that of other operators with the implantation of paraffin spheres in Tenon's capsule. The stump was prominent, there was no sinking in the upper lid and the prosthesis was movable. Many of these operations were performed at the Massachusetts Charitable Eye and Ear Infirmary, and some of the patients were kept under observation for varying periods. In some the ball had been extruded, in others the paraffin had broken into fragments and had become disseminated in the tissues of the orbit. (Above statement is based upon information supplied by several attending surgeons of the Eye and Ear Infirmary, with whom I had the opportunity to discuss the matter last summer). So, apparently, paraffin is not a good substance for implantation. If we take Sweet's figures as representing with some degree of accuracy the degree of motility after a solid implantation, the motility is surely much greater than the motility of a reform eye, after simple enucleation.

**Report of a Case of Retinitis Pigmentosa Sine Pigmento, Exhibition of Patient.**

Dr. J. F. Shoemaker reported a case of degeneration of the retina, with concentric contraction of the visual fields to within five degrees of the point of fixation, in a young man 26 years of age. There is no history of any other case of this trouble in either his immediate or distant relatives and no consanguinity on the part of the parents. The visual disturbance has come on since he was twenty years of age, although he could not see well at night, for a time following an illness when he was five or six years of age. After a short time this disappeared and no trouble was noted until after he was twenty years old, when the night blindness returned. His central vision, which is impaired by posterior capsular cataracts, is 18/48X in the right eye and 18/60— in the left eye. The retinal arteries are markedly contracted and there is a slight paleness of the optic nerve heads. No deposits of pigment in either the retina or choroid. He has vision in the temporal field from the 60th to 90th degrees in the right eye and from the 80th to the 90th degrees in the left. The degeneration evidently is of the same character as that in retinitis pigmentosa, but in this case the pigment deposits are lacking.

**DISCUSSION.** Dr. Post: I would like to ask the doctor whether, in this case, there was any defect in the hearing?

Dr. Shoemaker, in closing: I have not had this man's hearing tested, but it seems to be quite normal. I might say that in addition to this case I saw a case in the O'Fallon Dispensary five or six years ago, a young negro, who, after an attack of illness, came in with markedly contracted fields. The fields of vision were so contracted that he could not walk around without being led, yet his central vision was 20/19. The retinal vessels were even more contracted than in this case. I saw him only once and did not chart his field of vision, but I am sure it was not as large as this man's, but whether he had any peripheral vision or not, I do not know. In view of the theory advanced by some authors that the exciting cause may be a fever, or some infectious disease, I am inclined to believe this was a case of retinitis pigmentosa.

## COLLEGE OF PHYSICIANS OF PHILADELPHIA.

SECTION OF OPHTHALMOLOGY.

MEETING MARCH 21, 1912. DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

### **Interstitial Keratitis Following Traumatism.**

Dr. William M. Sweet reported a typical case of bilateral interstitial keratitis in a girl, aged seven years, who was struck on the right eye by a snowball. The immediate result of the traumatism was a slight edema of the eyelids, moderate conjunctival congestion but no apparent corneal injury. At the end of five days the inflammation had nearly disappeared under local applications, but the following day there was an increase in the conjunctival congestion, some photophobia, beginning pericorneal injection, and spots of infiltration in the deeper layer of the cornea. Two weeks later the left eye became inflamed, and the attending physician sent the case to the Jefferson Hospital. The child was undeveloped, poorly nourished, with notched and ill-formed teeth, and had suffered from infantile convulsions. Both eyes showed typical interstitial keratitis. The mother was healthy, but there was a history of specific infection in the father. The Wassermann test was decidedly positive, and an intravenous injection of salvarsan was given.

Dr. Sweet believed that, while the occurrence of interstitial keratitis after slight traumatism in individuals with hereditary tuberculosis or syphilis could not be doubted, he agreed with

Terrien, who recently made a study of the 93 reported cases of traumatic origin, that in only a few of these cases could the traumatism be regarded as a possible factor in the production of the corneal disease. Of 670 cases of interstitial keratitis in Uhthoff's clinic, Mohr found only two in which a traumatic etiology was most probable, and in both of these a Wassermann reaction was positive. The subject has recently been fully discussed abroad in connection with the Employer's Liability Act, and, while many do not deny the possibility of traumatism causing interstitial inflammation of the cornea, they believe that, before arriving at a decision ascribing the disease to the traumatism, there should be absolute soundness of the affected eye previous to the injury, the evidence of actual injury to the cornea should be unmistakable, and the development of the interstitial inflammation should be observed by the surgeon.

Dr. Zentmayer said that he had seen one instance where, following an injury to the eye, interstitial keratitis developed. A boy, aged about eight years, had received a contused wound of the ball, and during the course of the treatment a typical interstitial keratitis with salmon patch developed. He further said that the discovery of trauma as an exciting cause of interstitial keratitis had impressed him with the importance of according more weight to the statements of patients. In conditions long familiar to us and whose etiology has seemingly been firmly established, we are very apt to slight any statement that does not fit in with our views.

Dr. Hansell thought the evidence that traumatism may be the existing cause of interstitial keratitis, the basis of which is syphilis or tuberculosis, was sufficiently strong to convince the most skeptical. The process is analogous to the history one often hears as to the cause of internal squint—the falling into a tub of water, looking at an object over the back of a crib, or imitation. But such accidents cannot be held responsible for the disease. The diathesis pre-existed and the inflammation could as readily be called into existence by any unusual circumstances such as exposure, influenza, or disturbance of the alimentary canal. Therefore, in his opinion, excessive damages or, indeed, any damages at all would not be justifiable.

Dr. Sweet's patient is the second that has appeared at the Jefferson Hospital during the last few months. The other case was that of a boy who stated that he had been struck with a

snowball. A typical case of interstitial keratitis developed in the course of ten days.

Dr. S. D. Risley suggested that there were certain analogies in surgery which suggested a possible explanation for the occurrence of interstitial keratitis following an injury, in an individual subject to hereditary syphilis. For example, he had on a number of occasions seen blind eyes, lost a result of infectious inflammations, but quiescent for many years, have a recurrence of former conditions following a slight injury, as though imprisoned microorganisms had been released by the injury. He called attention also to the fact that in rheumatic people a slight injury to a joint was prone to set up acute and quite characteristic inflammatory reaction of a rheumatic type. Many children, the subject of hereditary syphilis, had specific retinal endarteritis and quiescent chorioidal patches; he had seen many illustrations of this in children with impaired visual acuity but quiet eyes. He thought it was probable that in such cases an injury might be sufficient to light up a general uveitis, of which the interstitial or parenchymatous keratitis were only phases.

Dr. Sweet, in closing, stated that the subject was important from the possible claims for damages that may be made for slight injuries which, but in a healthy individual with no antecedent morbid condition would be unimportant, in those with inherited tuberculosis or syphilis may be followed by a long-standing corneal disease. Unless the infiltration occurs at the point of injury and spreads under the observation of the surgeon, and implicates the deeper corneal layers, and the affection remains unilateral, it is questionable whether the keratitis can be regarded as the result of the traumatism.

#### **Secondary Glaucoma in Interstitial Keratitis.**

Dr. Edward A. Shumway read a paper on "Secondary Glaucoma in Interstitial Keratitis," and reported the history of a case. He said that von Graefe had called attention to the fact that changes in intra-ocular tension appeared in interstitial keratitis in 1869; that the usual change was a lowering of tension, which was not serious unless it occurred as the result of shrinking of an exudate; and that occasionally though rarely the tension was increased. Similar statements made by Greeff and Moor in their monographs on the subject, are to be found in the best text-books on ophthalmology. His experience had been limited to the present case, a young man

aged twenty years, who had been treated through three attacks of interstitial keratitis, due to hereditary syphilis. Recent examination had shown decided rise of tension (to 45 mm. of mercury, tested by the Schiötz tonometer), complete cupping of the optic nerves, atrophy of the nerves, contraction of the visual fields, and reduction of vision to 6/60, in one eye and to 1/60 in the other. Eserin contracted the pupils, and controlled the pain but did not reduce the tension. A Lagrange operation had been done on each eye, and the tension had returned to normal. Dr. Shumway said that in some cases the rise in tension was to be explained by seclusion of the pupil resulting from the accompanying iritis. When this was not present it was probably due to coexisting involvement of the ciliary body and anterior part of the chorioid, and the usually accepted theory was the increased difficulty in filtration, due to the blocking of the channels in the filtering angle by excessive amount of albumin in the aqueous. In the treatment, eserín or pilocarpin and diopnin were advised, unless they increased the irritation. Paracentesis of the anterior chamber was usually effectual by removing the abnormal contents of the anterior chamber, and could be repeated. Iridectomy was necessary, especially in the presence of pupillary seclusion, or if tension was persistently elevated, but should be postponed, if possible, until inflammatory symptoms had entirely disappeared. Dr. Shumway read also brief notes of three cases which Dr. de Schweinitz had seen, in all of which there was cupping of the optic nerves, atrophy, and contracted visual fields. In conclusion, the speaker said that a rise of tension was very commonly seen in herpetic keratitis and allied forms, particularly in elderly patients, but was equally uncommon in parenchymatous keratitis, which usually affected a younger class. Fortunately the attacks were generally of short duration, but if they came late in the course of the disease, might be permanent, and require operative intervention.

#### **Blepharoplasty for the Relief of Anchyloblepharon and Symblepharon.**

Dr. Zentmaver exhibited a case for Dr. Posey of extensive blepharoplasty which had been performed for the relief of anchyloblepharon and complete symblepharon of the inner third of the lids following a burn. The operation had been performed in three stages: (1) The division of the anchyloblepharon, the dissection of the lids from the globe, and the



superposition of a skin flap taken from the adjoining skin at the side of the nose upon the raw surface of the globe; (2) after some months, the division of the skin flap from its pedicular attachment, thus allowing the globe to rotate freely in all directions; (3) the restoration of the inner canthus, by excision of the redundant portions of the skin flap, and by the union of the edges of the lids of the canthus. Cosmetic result excellent save for some downward traction upon the inner portion of the lower lid, occasioned by cicatricial bands. An attempt will be made to overcome this later by division of the bands and by the insertion of a graft or flap into the ensuing gap.

**Case of Unsuspected Small Spindle-cell Melanosarcoma of the Chorioid.**

Dr. Chas. R. Heed reported the clinical history of a male, aged thirty-one years, whose family history was negative. His personal history, aside from pneumatic typhoid at the age of fifteen, was also negative. There had been no ocular disease previous to July 28, 1910, when the patient's right eye was struck with a fist. The patient had a "black eye," but no pain twenty-four hours afterward. Failing vision was first discovered seven months later. August 1, 1911, the right eye suddenly became painful and symptoms of iritis developed. The pain did not yield to treatment, and after dilation of the pupil a further diagnosis of iridocyclitis with old retinal detachment was made. The eyeball was enucleated August 2, 1911. A gold ball was implanted and an excellent socket obtained. Up to date the patient has been absolutely comfortable.

Dr. Sidney L. Olsho (by invitation) reported the pathological findings.

**Macroscopic.** The eyeball measures 25 mm. in diameter. The uncut ball presents nothing unusual. Internally, the posterior third is occupied by a dark and irregular solid mass. The posterior surface of the mass is smooth and in approximation with the sclera over an area of 20 mm. in diameter directly over the posterior pole of the eye. The anterior surface of the growth is irregularly tuberos, extends at its apex 14 mm. forward from the nerve head to within 3 mm. of the lens. The retina is pushed forward. The vitreous chamber is filled with exudate. The lens is displaced and the anterior chamber contains considerable exudate. The cut surface of the growth is of a mottled gray color.

**Microscopic:** An extremely cellular mass infiltrates the

choriocapillaris. The mass lies directly over the nerve head. The lamina suprachorioid separates it from the sclera. The vitreous lamina of the chorioid, together with the retina, are pushed forward by it. Within its confines the chorioidal structure is entirely replaced by a more or less dense aggregation of small, spindle-shaped pigmentiferous cells, which have no orderly arrangement. Collections of extracellular pigment are also present. The mass contains a scanty amount of fibrous connective tissue in scattered strands, a few thin-walled blood-vessels and a number of blood spaces. At the tumor margins normal chorioid can be identified, and anteriorly a portion of the retina. The optic nerve is infiltrated with scattered spindle-shaped cells, similar to those making up the tumor mass.

Diagnosis: Small spindle-cell melanosarcoma of the chorioid.

Dr. H. Maxwell Langdon showed the pathological specimen of an eye which had been the site of a sarcoma of the chorioid. The patient was first seen in 1906 for refraction. In 1908 she returned complaining of blurred vision of the left eye. There was a small sharply circumscribed detachment of the retina in the lower part, causing a small relative scotoma in the upper field, transillumination showed a dimming of the shadow over the affected area. A diagnosis of growth, probably sarcoma, was made, and enucleation advised. The detachment was about 3.5 D above the fundus level.

The patient sought other advice and was told by two oculists it was a simple detachment, and one wanted to do a sclerotomy. Later she returned, and by June the elevation of the retina was 12 D above the fundus. The eye was enucleated and a small sarcoma of the chorioid was found, surrounded by considerable hemorrhage.

Dr. William M. Sweet commented upon some interesting features in connection with the case.

Dr. William Zentmayer asked Dr. Sweet whether with the knowledge that an intra-ocular growth was being dealt with, it would be considered a perfectly safe procedure to insert a globe into the capsule of Tenon.

In reply to Dr. Zentmayer, Dr. Sweet stated that he regarded a malignant intra-ocular growth as a contraindication to the implantation of a ball in Tenon's capsule. In the series of cases of implantation which he reported some years ago, a small sarcoma of the chorioid was found in one of the eyes after

enucleation, but at the present time the gold ball was in position and the orbit healthy.

Dr. J. B. Turner referred to a somewhat similar case that had come under his observation. A woman, aged fifty-six years, had a fall in March, 1909, and injured the left eye. No treatment was administered until she was seen in June, 1909, by Dr. Thomas S. Tait, for an attack of acute glaucoma. No view of the fundus could be obtained, and an iridectomy was done for relief of pain. During Dr. Tait's absence from the city the patient was seen, on August 25, by Dr. Turner when sympathetic inflammation had developed in the other eye. At this time the vision of the good eye fluctuated from 6/9 to 22/100. After consultation with Dr. de Schweinitz, operation was advised and the eye was enucleated October 12. On sectioning a sarcoma of the chorioid was found. The patient did well and there has been no metastasis up to the present time. Dr. Tait will report the case in detail at some future time.

#### **Exhibition of a Transilluminator.**

Dr. Charles R. Reed exhibited a simple and practical transilluminator that he had been using with satisfaction for the last five months.

T. B. HOLLOWAY, M. D.,

*Clark.*

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### **COLLEGE OF PHYSICIANS OF PHILADELPHIA.**

MEETING APRIL 18, 1912. DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

#### **Keloid Epithelioma of Lid; Fricke Flap.**

Dr. S. Lewis Ziegler exhibited a patient showing an excellent result that had been obtained by the use of a Fricke flap after excision of a keloid epithelioma of the upper lid. A large flap, three-fourths of an inch wide and one-third larger than the wound, was outlined on the forehead and turned down to cover the denuded area. All adhesions were severed and the eyeball made mobile. The flap was loosely stitched into place, while the edges of the supra-orbital wound were undermined and joined by sutures. A dressing of perforated protective was laid over the wound and a hot water bag applied for two days. A leaky discharge of serous exudate appeared and necessitated the removal of the rubber protective and the application of a wet dressing of gauze pads wrung out in weak creolin, 1 to 500. The sutures were removed on the tenth day, and no suppuration or discharge

could be seen. Six weeks have elapsed since the time of operation. There is but little redness or marks of stitch holes remaining and the flap has healed down perfectly soft and smooth.

Dr. Zentmayer said that he had never seen less scarring after a plastic operation. He had been particularly unfortunate in two cases in having keloid scars which in one instance was quite disfiguring. He had always used protective and thought it possible that Dr. Zeigler's beautiful result was in part due to the after dressing.

#### **Zeiss Loupe.**

Dr. Ziegler also exhibited and demonstrated the Zeiss teleater prism glass with loupe attachment, which he regarded as having a distinct advantage over the ordinary loupe commonly used.

#### **Secondary Glaucoma in Interstitial Keratitis.**

Dr. Edward A. Shumway demonstrated the case of secondary glaucoma in interstitial keratitis, which he had reported at the previous meeting. He said the intra-ocular tension had remained at a satisfactory level, since the operations; vision in the right eye was 6-60, and in the left eye about 3-60.

#### **Scotometer.**

Dr. H. Maxwell Langdon exhibited an instrument which was a small edition of the carrier of a perimeter with two revolving disks, one for the colors and the other with apertures varying from 1 to 10 mm.; it is on a jointed handle and is intended for use with any non-registering perimeter, a hand perimeter or on a flat surface as in Bjerrum's method of scotometry. It is made by Wall & Ochs of Philadelphia.

Dr. Halloway stated that he was sure Dr. Langdon's instrument would prove of much service. That he had found in the use of the stick he had shown some time ago that unless a certain amount of care was taken the gummed paper disks would be dislodged from the holder. Dr. Langdon's instrument will prove of service in a hasty determination of the visual fields, but he thought that its efficiency could be improved by having it constructed so that the colors could be seen by the examiner as well as by the patient. In this way one could use his own fields for comparison.

#### **Probable Pseudoglioma.**

Dr. Krauss presented a boy, aged eight years, with an exudate or growth in the vitreous humor. The growth had

rather a sudden onset, with very transient inflammatory symptoms. When first seen there was some shallowness of the anterior chamber and posterior synechia on the temporal side. The temporal half of the eyeball was occupied by a mass giving greenish-yellow reflex by daylight. The nasal half presented a reddish reflex in the direct examination, but no details of the fundus could be seen, owing to fine vitreous opacities. The tension was normal or slightly increased. One week later the tension quickly dropped to  $-2$ ; the eyeball has continued very soft. The vitreous had gradually cleared, showing numerous bloodvessels running over the growth, in one place having the appearance of the optic disk, best seen with plus 12D. The fellow eye is normal with a hypermetropia of 2D. He first made the diagnosis of true glioma, but after the drop in tension, revised it to pseudoglioma of the retina. The parents have refused operation. The family history is negative.

Dr. H. F. Hansell was inclined to the diagnosis of real glioma rather than pseudoglioma because of the rapid advance of the process, the dislocation of the iris and lens, the rounded and well outlined contour and the absence of any history of a septic condition of the body. The present low tension did not, in his opinion, militate against the diagnosis of tumor, for in his experience intra-ocular tumors are not always associated with plus tension.

A degeneration and softening of some of the intra-ocular structures present in advanced stages of the disease will be accompanied by lowered tension. In either case he would recommend enucleation of the ball.

Dr. Ziegler thought that the conditions present did not resemble the cases of glioma he had seen, but was of the opinion that it was probably a pseudoglioma. When the report of the tuberculin test has been received it may be found that it is tuberculous in character. In view of the fact that there was so much disturbance about the ciliary body, he thought it might be wise to enucleate the eye.

Dr. Zentmayer said that he thought the condition to be one of pseudoglioma. The distinctly low tension, and apparently slight shrinking of the globe, together with muddy structureless appearance of the mass, all suggested a plastic inflammation. While the absence of a distinct increase in tension did not exclude a new growth he thought the presence



of a minus tension practically did so. He had never seen a minus tension in intra-ocular tumor except in the last stage.

Dr. Shumway said he was inclined to consider the condition the result of a plastic irido-chorioiditis, and not a glioma of the retina, in the first place because of the signs of iritis as shown by the posterior synechiæ; secondly, because of the gradually clearing opacities of the vitreous in advance of the mass; and finally the lowering of the intra-ocular tension, which he did not believe would exist in the presence of a tumor mass as large as that in Dr. Krauss' case. Whether the eye should be enucleated or not was another question. Frequently the retention of such an eye had a distinctly depressing influence on a child's general health, and under such circumstances enucleation was advisable and very beneficial, even if the diagnosis of tumor could be excluded.

#### **Polycythemia with Choked Disk.**

Dr. William T. Shoemaker exhibited a case of polycythemia and stated that the history had been previously reported before the Philadelphia County Medical Society by Dr. Walter S. Lucas in January of this year, but the patient was not shown. He was brought before the section tonight for exhibition only, and no attempt would be made to add anything to the excellent description by Dr. Lucas, whose paper will be published shortly, or to the literature of chronic cyanosis and polycythemia so recently reviewed by Dr. Holloway.

The man's hospital career so far includes the Pennsylvania, where he came first under Dr. Shoemaker's observation; the Jefferson; the German, where he had further opportunity of examining him; and back to the Pennsylvania, where for the minute he is again Dr. Shoemaker's patient. Although of course interesting in many ways, special interest from an ophthalmic standpoint lies the *violent* changes which are shown in the optic nerve, retina and bloodvessels. These changes are those of typical inflammatory choked disk, identical, it would seem, with those frequently seen with intracranial disturbance.

Carl Behr, in a most important communication upon this subject last year, including a case with microscopic examination, says that his case of polycythemia was the first reported with typical choked disk, and while referring to a number of cases of cyanosis in which optic neuritis, blurring of the disk margins, etc., were noted (Hirschberg, Posey, Harms),

he is inclined to think that the changes in these cases were not inflammatory but were due to edema, and, in the absence of swelling represented perhaps the beginning stages of the more pronounced condition.

The retinal changes which Behr demonstrated from his case are enlargement of the veins with no other alteration in the vessel walls than loss of elasticity and thinning. The retinal capillaries showed general distention and irregularity with fusiform dilations. All of the veins were filled with red cells, but Schlemm's canal, on the other hand, showed no enlargement, and contained but a limited number of red cells. There was a general round-celled infiltration. The chorioidal vessels were greatly distended, and in pronounced cases, he says, the sclera may be of a decided bluish color.

Whether or not the case shows simple edema around the nerve head or pronounced choked disk as in Behr's case or case which I show, would depend, according to him, entirely upon the equilibrium maintained in the eye between the fluids from the blood thrown into the tissues and that carried off through the ordinary lymph channels. The choked disk in polycythemia, he concludes, originates solely from local edema of the papilla and the peripheral end of the optic nerve, and, he states, that this choked disk ophthalmoscopically and microscopically, is in no way different from that of intracranial origin.

Dr. Holloway stated that through the courtesy of Dr. Shoemaker he had previously examined this patient, when he was in the German Hospital, and he thought the fundus manifestations were most unusual. While various marked disk changes have been observed in cases of cyanosis retinae resulting from various causes, Behr states that his case of polycythemia was the first in which a choked disk had been observed. Loring, in his description of a case of cyanosis retinae, stated that a previous observer had regarded the condition as a choked disk, and while Loring gives a description of the vessels and so on, he fails to mention the changes occurring in the nerve head. He thought Uthoff had also reported a case associated with a choked disk, but in this case a brain tumor could not be definitely excluded, he regretted that he could not recall the reference pertaining to this case. There can be no doubt that the changes exhibited by Dr. Shoemaker's patient were very remarkable, as there exists all the characteristics of a true choking.

**Sarcoma of Chorioid.**

Dr. J. B. Turner reported the following history of a case of sarcoma of the chorioid: Mrs. B., aged forty-five years, complained of failing vision of the left eye for six months prior to the time of examination. The family history was negative. Upon examination a retinal detachment was found down and out from the macula, and the field showed a scotoma extending from the fixation point to 35 degrees externally and 20° above. The eye was apparently quiet and the tension normal. Enucleation was advised and the diagnosis was confirmed by Dr. Howard F. Hansell, who saw the case in consultation with Dr. Turner. The vision was 6-22—; transillumination was positive. Dr. Sidney L. Olsho examined the eye microscopically and reported as follows: A flat mass of abnormal tissue 3 mm. in diameter was found 5mm. down and out from the nerve head. There was a subretinal exudate and the retina was detached over a large area. The tumor area exhibits an extremely cellular mass replacing the capillary portion of the chorioid. The mass lies between the supra-chorioidal layer and the vitreous lamina of the chorioid. The cells composing it are small, spindle-shaped, and closely packed; they have no definite arrangement. One or two bloodvessels and a few blood spaces are seen. A moderate amount of pigment is present which is both intra and extracellular. The normal capillaris of the chorioid can be recognized at the tumor margin. Diagnosis: Small spindle-celled sarcoma of the chorioid.

**Entropion Relieved by Snellen Sutures.**

Dr. William M. Sweet exhibited a man, aged twenty years, who had spastic entropion of both lower lids since he was six years old, the left lid being completely everted while the defect was partial on the right side. Two sutures, according to the method of Snellen, had been inserted three weeks previously on the left lower lid, and allowed to remain for ten days. The result of the operation was to completely correct the deformity, and bring the lid margin in perfect contact with the eyeball. Applications of tannate of glycerin were made daily to the palpebral conjunctiva to reduce the swelling and chronic inflammation.

**Optic Neuritis with Temporary Blindness Due to Sinusitis.**

Dr. Zentmayer reported the clinical history of a case of optic neuritis with temporary blindness due to sinusitis. A.

B., merchant, aged thirty-eight years, widower. A history of recurring attacks of sinusitis for which he had been operated upon in Chicago. Five days ago following a period of nervous tension he felt fulness in the frontal region accompanied by numbness in the arms extending to the fingers and failing vision in the right eye. O. D., hand movements; O. S., 6-6 pt.; O. D., slight prominence of the papilla with enlargement of the veins. O. S., normal, except veins dark. O. D., small superior field; O. S., normal, except enlarged blind spot. Nasal examination by Dr. G. M. Marshall showed removal of anterior portion of both turbinates with perforation of septum and grumous discharge from above the turbinates. Local nasal treatment and antisyphilitic treatment was followed by absolute blindness in O. D. in five days. The ethmoidal cells were then opened, the sphenoid cells perforated and the ethmoidal cells curetted. Vision returned the next day and gradually improved, until at the end of two months it equalled 6-18 pt. The nerve was decidedly atrophic. On two occasions small infected corneal ulcers occurred. One year later with fulness of the frontal region the optic papilla on the left side was found hazy and the blind spot very much enlarged. The mucous membrane of the nose was again found hypertrophied and the anterior ethmoidal cells were closed in with probable bone formation.

Dr. Krauss stated that in his opinion a great advance had been made in ophthalmology when unilateral nerve disease was referred to the nasal sinuses even when the latter do not appear to be greatly diseased, as in Dr. Zentmayer's case. Dr. Krauss had referred to him a few weeks ago a man, aged fifty years, in whom the vision had dropped suddenly to about one-third of normal in the right eye, the patient being conscious of a continued blur. There was nothing to account for this condition, the fields of vision were normal, with no scotomata, but a slightly enlarged blind spot. The right nostril had been operated for polyps by a New York rhinologist some years ago, with good result. There remained a large posterior ethmoidal cell projecting into the outer side of the sphenoid, showing no evidence of disease. He thought it advisable to open the cell, and found it filled with small polypi. It was cleaned out, and in one week, without additional treatment, the vision was normal with the disappearance of the blur.

Dr. Zentmayer said there seems still to be skepticism on the part of some rhinologist toward the causative relation between sinus disease and serious ocular disturbance, and the oculist sometimes finds it necessary to assert himself in order to have radical operations performed where the casual examination of the sinuses seems to indicate that they are in a healthy condition.

#### **Edema of the Orbits, Secondary of Facial Dermatitis.**

Dr. Howard F. Hansell, in describing the symptoms present in his patient, said that the left cheek was flushed and swollen, unyielding, and hard to the touch, not sensitive, and distinctly higher in temperature than the forehead. The right cheek was similarly affected but much less in degree. The left conjunctiva was puffed, arranged itself into folds as the eye turned in various directions and was formed into a ridge by the closing of the lids. The edema could be shifted into areas of swelling by pressure upon the movements of the lower lid by the finger. The eye was unaffected and the vision was good.

The infiltration of the right orbit was more easily studied because the right eye had been enucleated many years ago. The artificial eye which had been worn with comfort was extruded after every attempt to wear it, and finally it was impossible to insert it.

The general symptoms consisted of an elevation of temperature ranging from 99° to 103° pain, swelling, and stiffness of many of the larger joints and a superficial evanescent and frequently appearing erythematous-like rash. The infiltration of the orbit was regarded as an alarming complication, as in the first few days of the illness it appeared as though the structures posterior to the globe in the orbit would become involved, as so frequently happens in erysipelas, and the functions of the eye disabled or lost.

An injection of 20 c. c. of streptococcic serum was given the first day; 30 c.c. the second, and 40 c.c. the fourth day after admission to the hospital. The dermatitis in the left side and the orbital edema became promptly better, but the disease itself was not favorably influenced, as was shown by increased swelling and infiltration of the skin and orbit on the right side.

After seven days of the continuance of the orbital complications the local symptoms subsided and the artificial eye



has been worn with comfort. At no time was there any disturbance in the interior of the left eye or any abnormal limitations of its movements.

T. B. HOLLOWAY, M.D.,

*Clerk.*

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## CORRESPONDENCE

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### TRACHOMA IN ILLINOIS.

REPLY TO DR. DANIEL W. WHITE.

To the Editor of THE OPHTHALMIC RECORD:

Dear Sir—In justice to a town in which I practiced ophthalmology and to many friends now residing there, I beg to reply to that part of Dr. Daniel W. White's paper in the May OPTHALMIC RECORD, "A Brochure on Trachoma," in which he does Cairo, Ill., and its citizens a gross, inexcusable injustice. I quote from his article, "In the State of Illinois, the town of Cairo has oftimes been called 'Little Egypt,' and it is said that the train conductors in calling this station have called 'Trachoma,' due to the chronicity of the disease in that locality and the inability of the authorities to clear it up."

The town of Cairo is never called "Little Egypt." The southern tier of counties in Illinois are often called Egypt—or Little Egypt—not as Dr. White would have us believe, because of the prevalence of trachoma, but because of the blackness and fertility of the soil (due to the overflow of the Ohio and Mississippi Rivers), thus resembling the soil along the Nile in Egypt. The Encyclopedia Britannica contains the following: "The *lower end of the state* (Illinois) called 'Egypt' because of its never failing fertility."

The doctor's effort to be facetious about the conductors announcing the stop in Cairo as "Trachoma" is too absurd to need contradiction when it is realized that trachoma is *practically* unknown there, and hence never could have given the authorities or doctors any trouble "to clear up" what did not exist. During my practice there of ten years I never saw a case of trachoma.

W. P. MALONE.

The Farragut, Washington, D. C.

## NEWS ITEMS.

Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. S. Lewis Zeigler of Philadelphia is in Europe.

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Dr. George E. de Schweinitz of Philadelphia is in Europe.

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Dr. Joseph Foster of Lansing, Mich., died in Detroit, June the third, aged fifty-three years.

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Professor Dr. Bach, director of the Marburg (Germany) eye clinic, died in that city on May the tenth.

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Dr. A. S. Rochester has been appointed adjunct to the Eye and Ear department of St. Luke's Hospital, Chicago.

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Children with infectious eye diseases in New York City are to be segregated in special classes in School No. Ninety-seven.

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The Southwestern Kentucky Medical Association at its recent meeting at Paducah elected Dr. C. E. Purcell of Paducah its President.

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Dr. W. L. Vercoe of Lead, South Dakota, was elected Secretary of the State Board of Health at a reorganization meeting held May the first.

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Dr. Edward Jackson of Denver, Colorado, spoke at the Convention of the American Federation for Sex Hygiene, Atlantic City, June the third.

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Dr. Daniel A. O'Hearn, well known as an ophthalmologist in his home, Lowell, Mass., died in that city May the third of pneumonia. Age thirty-three.

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The New York Ophthalmic and Aural Institute has purchased ground at the corner of Tenth Avenue and Fifty-seventh Street, where they propose to erect a new building.

A. Siegrist in *Correspondenz-Blatt für Schweizer Aerzte* of Basel makes a strong plea for the earlier recognition of choked disc and the palliative treatment by means of lumbar puncture.

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The Lake View Hospital Association of Chicago has completed its new hospital building at 4424 Clarendon avenue. Dr. Alfred N. Murray is in charge of the department of the eye, ear, nose and throat.

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The members of the medical profession in Dubuque, Iowa, gave a farewell dinner June the tenth to Dr. J. W. Heustis of that city. Dr. Heustis is soon to leave Dubuque and locate in Washington, D. C.

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Among the addresses delivered this year at the meeting of the German association of hygiene was one by Dr. Kousius, privat-docent for ophthalmology in Berlin. He contends that school childrens eyes should be examined in the earlier grades rather than wait until the higher grades are reached. He also believes that much eye damage is done by reading outside of the regular school work and advises against this, recommending outside exercises for the eye and body.

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A workman in London, England, recently lost the sight of one eye, but as the eye did not appear to be blind, had no difficulty in obtaining work. Later the blind eye was removed on account of a second injury and he then could not obtain employment. The highest court in England, the House of Lords, finally decided that he was entitled to compensation even though he was no worse off without his eye than with it as it was blind. It was decided that the absence of the eye rendered his work less salable, owing to prejudice.

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The Medical Department of the University of Colorado is holding a conference for summer work in Ophthalmology. The course of study began June 24 and closes August the second.

From June 24th to July 20th, the following daily schedule will be followed:

8:30 to 10:00 a. m., Monday, Tuesday, Thursday and Friday—Histology and Pathology, Dr. Crisp and Prof. Jackson.

10:00 to 11:30 a. m., Monday, Tuesday, Thursday and

Friday—Refraction, Accommodation and Movements of Eye, Prof. Jackson.

8:30 to 12:00, Wednesday—Demonstrations of Operations and Clinical Work Outside of the University Clinic.

12:30 to 2:00 p. m., University Clinic, Monday, Wednesday and Friday, Prof. Coover; Tuesday, Thursday and Saturday, Prof. Chase.

3:00 to 4:00 p. m., Monday, Tuesday, Thursday and Friday—Ophthalmic Diagnosis, Prof. Black.

Wednesday—Special Lecture.

4:00 to 5:00 p. m., Monday and Wednesday—Ophthalmoscopic Diagnosis and Diseases of Posterior Segment of Eyeball, Prof. Jackson.

Tuesday and Thursday—Conferences.

Friday—Special Lecture.

#### SHORT COURSE.

From July 22nd to August 2nd inclusive, the above schedule will be altered by the introduction of the larger part of the special lectures, demonstrations and conferences given below. Several of the lectures in the list will occupy two or more periods.

#### SPECIAL LECTURES.

Dr. L. Webster Fox, (Philadelphia)—Newer Operations for Glaucoma.

Dr. T. B. Schneideman, (Philadelphia)—Cardinal Points of the Eye. Images Formed in Different Refractive Conditions.

Dr. Frank C. Todd, (Minneapolis)—The Substitutes for Enucleation. Malingering or Pretended Blindness.

Dr. Casey A. Wood, (Chicago)—The Operative Treatment of Trachoma.

Dr. W. C. Bane—Sketching Ocular Lesions.

Dr. Melville Black—Injuries to the Eye.

Dr. John Chase—Detachment of the Retina.

Dr. D. H. Coover—New Aids in Ophthalmic Diagnosis.

Dr. J. M. Foster—Visual and Color Tests for Railroad Men.

Dr. Edward Jackson—Accurate Skiascopy. Transplantation of Ocular Muscles.

Dr. Robert Levy—Relation of Nasal Accessory Sinuses to Optic Nerve and Orbit.

Dr. G. F. Libby—Heredity of Ocular Diseases.

Dr. Oliver Lyons—Latent Gonorrhea as a Cause of Ocular Disease.

Dr. W. C. Mitchell—The Wassermann Reaction and Salvarsan.

Dr. G. A. Moleen—Paralysis of Ocular Muscles.

Dr. E. R. Neeper, (Colorado Springs)—Office Apparatus and Arrangements.

Dr. G. E. Neuhaus—Optic Tracts and Centers.

Dr. J. A. Patterson, (Colorado Springs)—Vitreous Opacities and Sinus Disease.

Dr. H. T. Pershing—Headache.

Dr. Henry Sewall—Blood Pressure and Its Estimation.

Dr. E. O. Sisson—Examination of Conjunctival Secretions.

Dr. F. R. Spencer, (Boulder)—Atrophy of the Optic Nerve.

Dr. G. H. Stover—Localization of Foreign Bodies by X-Ray.

Dr. D. A. Strickler—Forms of Partial Cataract.

Dr. C. E. Walker—Demonstrations of Operations.

This course should receive encouragement from ophthalmologists in America, as it is the only course of study in this country similar to the Oxford Congress.

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On June 6th, at Atlantic City, during the meeting of the American Medical Association and following a symposium on anesthesia, the National Society of Anesthetists was organized. Prof. Yandel Henderson of Yale, Chairman of the commission on anesthesia of the A. M. A., occupying the chair, those assembled for the symposium, acting as a committee of the whole, proceeded to organization and elected the following officers for the year 1912-1913.

President—James T. Gwathmey of New York.

Vice-Presidents—Charles K. Teter of Cleveland; F. H. McMeekan, of Cincinnati; Yandel Henderson, of New Haven.

Secretary—William C. Woolsey, 88 LaFayette avenue, Brooklyn.

Treasurer—Harold A. Sanders, of Brooklyn.

The constitution and by-laws were ordered to be drawn by the executive committee and submitted to the society at its next meeting for adoption; all names submitted for membership, if qualified in the estimation of the executive committee, shall



be considered as charter members if presented within a period of sixty days and accompanied by the levied due of three dollars.

The National Society of Anesthetists in this notice calls all those who are actively interested in this work to join its ranks and assist in developing the subject of anesthesia to greater perfection and more uniform safety.

WILLIM C. WOOLSEY,

June 10, 1912.

*Secretary.*

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Professor Kraus is temporarily in charge of the Marburg Eye Clinic, of which the late Professor Bach was director.

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Trachoma has been found not only among the Indians of the White Earth Reservation in Minnesota, but has also been found among foreign born miners of the Iron Range, according to the report of the Hibbing Board of Health.

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All subscriptions to the Knapp Testimonial Fund should be in the hands of Dr. A. E. Bulson, Jr., Fort Wayne, Ind., before August 1, 1912. With every subscription of five dollars or more the bound transactions of the Section of Ophthalmology and the Ophthalmic Year-Book will be furnished.

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The University of Colorado now confers the degree of Ophthalmology. The requirements are two years post-graduate study, including one year of practical clinical work with systematic collateral reading, after which the special course in ophthalmology at the University of Colorado is taken and a thesis must be presented and accepted.

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### BOOK NOTICES.

THE STORY OF A DOCTOR'S TELEPHONE TOLD BY HIS WIFE, by Ellen M. Firebaugh, author of the "Physician's Wife." The Roxburgh Publishing Company, Boston, Mass.

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TEXTBOOK OF OPHTHALMOLOGY, in the form of Clinical Lectures, by Dr. Paul Roemer, Professor of Ophthalmology at Griefswald, translated by Dr. Matthias Lanckton Foster, member of the American Ophthalmological Society; member of the American Academy of Ophthalmology and Oto-Laryngology.

Price, \$2.50. One hundred and eighty-six illustrations in the text and thirteen colored plates. Volume I. Rebman Company, 1123 Broadway, New York. 1912.

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THE OCULAR MUSCLES, A Practical Handbook on the Muscular Anomalies of the Eye, by Howard F. Hansell, A. M., M. D. Professor of Ophthalmology in the Jefferson Medical College and Wendell Reber, M. D., Professor of Ophthalmology in the Medical Department of Temple University. Price, ——. Second edition, 223 pages, rewritten and enlarged, with three plates and 82 other illustrations. P. Blakiston's Son & Co., 1012 Walnut Street, Philadelphia. 1912.

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TRACHOMA AND ITS GEOGRAPHICAL DISTRIBUTION. By Prof. Dr. G. Stanculeanu, chief of the University Eye Clinic in Bukarest, and Dr. Mihail, Chief of the Laboratory of the University Eye Clinic in Bukarest. Twenty-three Figures in the text, two Maps and a colored plate. Published by Josef Safar, Vienna and Leipzig. 1912. Price, M., \$2.80.

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New and Nonofficial Remedies. Price, cloth, \$0.50; paper, \$0.25; pp. 298. Chicago: American Medical Association, 1912.

This book contains descriptions and a statement of the actions and uses of all articles which have been examined and accepted by the Council on Pharmacy and Chemistry prior to Jan. 1, 1912, for inclusion in the list of New and Nonofficial Remedies.

The book is unique. The work of the Council during its seven years of existence and the reports of the Propaganda Department of The Journal A. M. A. have convinced the physician that in the prescribing of proprietary remedies he must be more careful in his selection of those which he directs for his patients. Nowhere else can the physician or the pharmacist turn for reliable, unbiased information concerning the new remedies. This book enables the physician to make such selection and the careful pharmacist to know the character of the remedies he dispenses. It should be in the hands of every one of them.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Pol.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.) C. H. Francis (Pol.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pusy, N.W.U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wipern (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wipern (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Illa. Med.) N. E. Remmen (Inf.) Wm. E. Gamble (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Illa. Med.)	*J. F. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusy (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Harrison Streets.	Pol.: Chicago Policlinic and Hospital, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington and Franklin Streets. Clinics all day.	Illa. Med.: Illinois Medical College, 182 Washington Blvd.	P.-G.: Postgraduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1410 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

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No. 8, New Series

## REPORTS OF SOCIETIES

SECTION ON OPHTHALMOLOGY.  
AMERICAN MEDICAL ASSOCIATION.  
ATLANTIC CITY, JUNE, 1912.

Chairman's Address.

Dr. Adolf Alt, St. Louis: After referring to the death of Dr. A. A. Hubbell and to the Knapp Memorial Fund, the Chairman discussed the progress in ophthalmology and then took up, as the scientific theme of his paper, *Sympathetic Ophthalmia*. Since Koch had proved the microbic origin of disease, search had been made for a bacterial cause of sympathetic ophthalmia, which occurs almost always in an injured eye, but so far a bacterial cause had not been absolutely demonstrated, though the experiments of himself, Deutschmann, H. Gifford and others had proved that the transmission of bacteria or other noxious substances from one eye to the other is possible. The removal of the exciting eye often results in the subsidence of the sympathetic ophthalmia, notwithstanding the dictum of Elschnig that it has no influence. The bacterial origin seems probable, but Elschnig has proposed another: that it is an anaphylactic uveitis due to the absorption of disintegrated uveal tissue in the injured eye. Dr. Alt then related a case of sympathetic chorioiditis, a rare condition. A boy aged 9 had been injured by being struck in the eye with the end of a whiplash, followed by inflammation, which continued in spite of local measures, mercury, aspirin, etc. A hypopion appeared and the pupil became smaller. The inflammation finally subsided, but the pupil was closed. A month later there were symptoms of sympathetic inflammation in the other eye. Under atropin, small brownish pigmented spots could be demonstrated on the anterior lens capsule. The injured eye was later enucleated. Under treatment the sympathizing eye cleared up. It had presented a slight episcleral injection, numerous pigmented spots arranged in a circle on the anterior lens capsule, the vitreous

body was somewhat cloudy, the outlines of the disk were indistinct and the retinal veins were tortuous. The chorioiditis had developed four and one-half months after the injury to the eye and a little over two months after the onset of the sympathetic inflammation, at a time when all other symptoms except slight redness of the papilla and a slight tortuosity of the retinal veins had disappeared. Most of the spots have disappeared.

**A Clinical Communication on Certain Visual-Field Defects in Hypophysis Disease, with Special Reference to Scotomas.**

G. E. de Schweinitz and T. B. Holloway, Philadelphia.

*Abst.* The authors, after some reference to the literature of the subject and to the variations of the visual-field defects in pituitary body disease, make special reference to the presence of scotomas, central, paracentral and peripheral. These scotomas the authors attempt to classify, and their paper is illustrated with observations taken from the literature, and with the records of three case histories; two of undoubted pituitary body disease, and one where the lesion, in all probability, was posterior to the chiasm. The comparative infrequency of reference to central scotomas in hypophysis disease in literature is pointed out, several notable communications excepted. The occasional difficulty of distinguishing these scotomas from those produced by various forms of intoxication is discussed, and the situation of the probable lesion is described in one or two instances, although it is pointed out that visual disturbances in hypophysis disease, when they depend on the presence of central scotoma, cannot always be explained, even at autopsy, by finding a definite lesion.

**DISCUSSION.** Dr. T. B. Holloway, Philadelphia. The factor most frequently regarded as responsible for the visual field phenomena in pituitary lesions is direct pressure on the chiasm or on some portion of the visual tract. Cysts must not be overlooked, as well as localized meningitis, toxemia, hemorrhage, and areas of softening due to thrombotic processes. Constriction of the visual tract by some portion of the circle of Willis I believe to be important. Zander found that the chiasm was on one side or the other of the median line in about 60 per cent. of cases, and was so situated that the hypophysis lay anterior. Bartels states that in only three of thirty-nine cases was the hypophysis anterior to the chiasm. He explains that growths situated beneath or anterior to the chiasm cause



a constriction of the optic nerve by pressing these structures against the anterior cerebral arteries. In view of this, it would seem that higher basal lesions might also produce constriction. Foster Kennedy points out that in the presence of a growth in the frontal lobe there may exist a central scotoma and optic atrophy on the side of the lesion, associated with contralateral choked disk.

Dr. F. Park Lewis, Buffalo: I wish to emphasize that the selective affinity of toxins for various roots may be found otherwise than in the macular bundle. A case in point was an eclampsia which on recovery left permanently an exactly horizontal line just escaping the macula, which has persisted for three years. A case of involvement of the optic nerve in myxedema, in which vision was about one-fourth, improved under pituitary extract. It was given on the theory that there was a hypertrophy of the pituitary with lessened secretion. Under its administration the vision improved to about one-half.

Dr. F. H. Verhoeff, Boston: Dr. de Schweinitz and Dr. Holloway are unable to offer a satisfactory explanation of the occurrence of central scotoma in hypophysis enlargements. In a cause autopsied by me five years ago there was a sclerosis and thinning of the wall of the internal carotid artery, leading to compression of the optic nerve at its exit. Microscopic examination showed that the papulomacular bundle was completely degenerated, whereas the remainder of the nerve was little affected.

**Disease of the Optic Nerve in Myxedema: Its Relationship to the Thyroid Gland and to the Hypophysis.**

George S. Derby, Boston.

*Abst.*—CASE 1.—Woman, aged 56. Myxedema, atrophy of optic nerves, bitemporal hemianopsia, progressive loss of sight. CASE 2.—Man, aged 49. Myxedema, low-grade optic neuritis, chorioretinitis. Concentric contraction of the fields. Progressive loss of sight. Abstracts of twelve similar cases found in literature. Changes in the optic nerve in these cases represent a low-grade inflammation. Three types of fields; temporal hemianopsia, concentric contraction, central scotoma. Summary of evidence in literature pointing to a close relationship between thyroid gland and hypophysis. Atrophy of optic nerve in cases showing first type of field due to enlargement of hypophysis. Discussion of how the other two types of field may be caused.

Dr. T. B. Holloway, Philadelphia: I was glad to hear Dr. Verhoeff's observation on the optic nerve. It adds another interesting observation to that of Foster Kennedy, that pressure of the brain on the optic nerve was responsible for the central scotoma, inasmuch as he regarded the papulomacular bundle as being the most sensitive of the various tracts.

**The Krönlein Operation as an Exploration Procedure in Affections of the Orbit.**

Arnold Knapp, New York.

*Abst.*—Apart from the generally recognized advantages of the osteoplastic resection of the outer orbital wall, commonly called the Krönlein operation, for removing tumors from the depth of the orbit with preservation of the eyeball, the author believes that this operation should be more frequently employed as an exploratory procedure in affections of the orbit, both on account of the facility of the method and to obtain exact information of conditions present in the depth of the orbit. Description of certain steps in the technic. Report of two illustrative cases.

**The Surgical Treatment of Exophthalmos.**

Martin B. Tinker, Ithaca, N. Y.

*Abst.*—Exophthalmos in goiter cases frequently improved by partial thyroidectomy. In obstinate cases operation indicated for relief of disfigurement or pain, and to remove danger of corneal ulceration from exposure. Tarsorrhaphy sufficient in less extreme cases. Osteoplastic resection of outer wall of orbit for bad cases, and those caused by orbital tumors. Technic of improved operation based on study of anatomy of this region, and results.

Dr. James Bordley, Jr., Baltimore: The Krönlein operations I have performed have been in the main unsuccessful, and I look on it as an operation of last resort. In my cases the desired result was not obtained or the resulting scar was objectionable. Dr. Tinker's skin wound and the method of handling the bone flap should materially lessen the resulting deformity. As an exploratory procedure it does not appeal to me as does the curvilinear incision of Rollet, in which the skin scar is much less prominent, the bony contour of the orbit is not disturbed and there is much less danger of injuring the globe and ocular muscles. In exophthalmos, where the muscles are stretched, large masses can be removed from the orbit with the greatest ease, and secondary scar formation never in-

terferes with the movements of the eye. Following the Krönlein operation there may be exophthalmos, with poor motion of the globe, partial blindness from traumatism or atrophy from pressure from hemorrhage, partial facial paralysis, displacement of the flap until after the edema has subsided, and consequent deformity. Dr. Bordley illustrated his objections by reporting three cases.

Dr. M. L. Foster, New York: A few weeks ago I saw a patient on whom I had performed the Krönlein operation twelve years ago, when he was a child. Now he has a paresis of the external rectus and a scar in the skin so slight that unless your attention is called to it you would scarcely notice it. I used a straight, thin, sharp chisel once because I had no other, and I have never used the curved chisel since. I have seen no deformity following the operation in my cases.

Dr. Eggleton, Newark, N. J.: My experience has been limited to two operations, one of which left a serious deformity. I wish to advocate an operation which I presented before the Academy of Medicine about a year ago for the extraction of a foreign body. It consisted of an incision through the skin and fascia over the temporal muscle, separating that muscle in the way in which we do a decompression operation, but farther forward, opening the temporal fossa, elevating the small part of the brain and opening the whole roof of the orbit. It is simple, is entirely extra-dural, and the exposure of the orbit is complete. I believe it would be applicable to drainage of the orbit in suppurative processes. It certainly does away with the deformity of the Krönlein operation.

Dr. Lucien Howe, Buffalo: We should not confuse any operation itself with the results which we get in the condition for which the operation was used. The suggestion of Dr. Tinker of first making the opening and then cutting from within outward, is excellent. There will be no difficulty in making the incision just as it was first described if the chisel used has sharp corners. The bone is so very thin that the triangle is cut out without much difficulty. The scar, in some cases, at least, is of small significance.

Dr. W. C. Posey, Philadelphia: I have done the Krönlein operation four times, with three perfectly satisfactory results. I followed the steps of the operation as given by Krönlein, in my first operation, using the curved chisel, and there was an immediate curling up of the orbital rim and some loss

of bone, with a small fistula following. In the other three cases there was scarcely any deformity, now some months, and in some of the cases a year or more after the operation. After five years there is but little deformity in the first case. Exophthalmos after such a formidable operation is a possibility that should be expected.

Dr. Arnold Knapp, New York: I shall be glad to try Dr. Tinker's incision. I have not noticed any facial paralysis. I think the operation of Rolet is excellent, but it does not satisfy the purpose of the Krönlein operation, which is to remove a tumor from back of the eye, and it is not possible to get at it if you do not remove some of the bone. The operation is not a cure for all orbital conditions. Exenteration can always be done if it does not succeed. I have not been satisfied with the disfigurement I have had.

Dr. Martin B. Tinker, Ithaca, N. Y.: I am convinced that the incision advocated has a good many advantages and I should be glad to hear of your results with it. I believe some have not used quite as extensive a bone flap as I have advocated. The upper part of the wall of the orbit is very fragile and I have never seen a chisel sharp enough to cut it without some splintering. However, there is not much deformity if the periosteum is reflected before the bone flap is cut. The Gigli saw cuts a smooth, clean flap in the bone.

#### **Pemphigus of the Conjunctiva; With the Report of a Case.**

Walter Baer Weidler, New York.

*Abst.*—Pemphigus of the conjunctiva is not a new disease, as it was recognized and diagnosed as such as early as 1800. In regard to the etiology of this disease we are not sure. Croker inclines to the nervous hypothesis, while Schwimmers says that it is a trophoneurosis. The latest theory that has been advanced is that of the toxins affecting the nerve endings. The progress of the disease in the case reported in this paper was very rapid, the vision of both eyes being destroyed in about three months. No surgical measures were employed. Wassermann and von Pirquet were both negative. The disease was at first limited to the conjunctiva, but at the last stage of the process there was characteristic eruption on the body. The microscopic findings were of interest and are reported in full. The bacteriologic studies revealed nothing new, the bacteria being of the same type as other investigators had already shown.

Dr. Casey Wood, Chicago: During the last twenty-five

years I have seen three cases of chronic pemphigus affecting the eye. In two of these the corneas were affected and in one of them the patient became totally blind in spite of the treatment of competent ophthalmologists. In the third one the disease was confined to the lower culdesac, but involved both the ocular and palpebral conjunctivæ, resembling the case described. The patient, a woman, aged 48, was subject to chronic pemphigus for two years. Dr. Arthur Elliott, an internist, and Dr. Frank Brawley examined the patient and reported that the patient had pemphigus affecting the nasal, buccal and vaginal mucosa, in addition to the lesion of the conjunctiva; so that it probably belongs to that well-defined instance where the pemphigus is confined to the mucous membrane and has not attacked the skin. Internal examination shows that the woman is healthy. I had several examinations made of the discharges, but they threw no light on the condition. Cultures were made. Bullae appeared first on the mouth and lips, at the same time as on the eyelids. The vesicles were sometimes as large as peas and sometimes would break shortly after forming and discharge a watery or bloody fluid, followed by canker sores both in the mouth and on the eyelids. During the past years a dozen attacks of bleb formation occurred with inflammation of the eyes lasting a variable number of weeks. The patient complained of pain, lacrymation, foreign body sensation and some discharge from both eyes. At present, vision is 6/6; Jager, one; tension and reflexes, normal. The lesions are confined to the two lower quadrants and down into the sulci, but not above. Below in each instance the culdesac is shrunken and almost obliterated with symplepharon about 4 mm. from the sclero-corneal junction, the thickening running into and rendering opaque the corneal border. The ocular excursions as shown by the macular field of fixation are limited to up, in and out. The case was mostly regarded as trachoma, and in many of its manifestations it looks like trachoma. Unfortunately I think she has been treated by sulphate of copper and other strong astringents, which probably have aggravated the disease. Mild applications, cold fomentations, simple colyria, the use of castor oil, cold cream, etc., gave a certain amount of relief to the patient. I am giving hypodermic injections of arsenic in various forms. I began with Fowler's solution, and along with the injection I give small doses of arsenic, because I think we can increase the hypodermic injections of arsenic with less danger



if the patient is kept more or less under the influence of the arsenic. Skin grafts will be a good thing in this form of pemphigus, which attacks particularly the mucous membrane.

Dr. H. W. Woodruff, Joliet, Ill.: I would like to relate the history of a case of complete atrophy of the conjunctiva which I attribute to pemphigus. There might be some doubt as to the diagnosis, but it had reached the stage of complete atrophy, so that there was no longer any culdesac. I entirely relieved the contraction by skin grafting after the method of using a plate of block tin with the skin graft placed over the tin, restoring the lower culdesac first, and afterward the upper one. This gave the patient some mobility of the eye, but the clearness of the cornea was not restored.

Dr. E. L. Jones, Cumberland, Md.: I saw a very severe and typical case four or five years ago in which Dr. Frost had made the diagnosis. It was in an elderly woman already affected for several years with pemphigus in the vagina. It had now affected the eye and looked as though it had been scalded, with white blisters. It gradually extended until the entire conjunctiva was destroyed and the cornea and everything was matted and massed together. In the course of time the other eye was affected similarly. The disease lasted ten years or more. The woman has died since the receipt of the preessional book. The mouth was invaded by white blebs of gelatinous consistency, followed by atrophy, with intense suffering and stricture of the esophagus, and for years the patient could only swallow milk in small sips. All sorts of treatment were tried, but nothing availed.

Dr. Joseph S. Lichtenberg, Kansas City, Mo.: I wish to report a case exactly parallel with that of Dr. Weidler's. The history was indefinite; it could not be determined whether it was trachoma or pemphigus, but from the age of the patient and the history it was concluded that it was pemphigus. In this case I restored the culdesac with mucous membrane grafts from the lips on the Wolff principle and not on the Thiersch principle. This case is now of four or five years' duration and still holds good.

Dr. Walter E. Lambert, New York: It might be of interest to report a case of involvement of both eyes which was diagnosed as acute septic pemphigus, resulting from a streptococcus infection after a submucous operation in the nose. The patient had a most extensive eruption, vesicular or pustular, involving

the mucous membrane of the mouth, throat and eyes, and the skin generally, with a rise of temperature and intense suffering. The physician thought it was a case of smallpox and had called in the health officers of New York. I was at a loss at first myself, but thought it was a case of acute pemphigus, and Dr. Elliott so diagnosed it. The patient died from general septic infection three or four days later. The streptococcus was demonstrated.

Dr. Walter B. Weidler, New York: When this patient was received in the clinic the diagnosis made was trachoma, but Dr. Thomson, seeing the patient at the Manhattan, immediately diagnosed pemphigus, and through study of the case proved that diagnosis. There had been no general eruption whatever, but there was the involvement of the nose. Both eyes were completely sealed together at the palpebral margin. There were proved pemphigus lesions on the animal.

#### **Subconjunctival Injections in Ophthalmic Therapy.**

E. L. Jones, Cumberland, Md.

*Abst.*—This paper is a contention for massive injections of cyanide of mercury in a large class of ocular diseases, or injuries, not amenable to accepted methods of treatment, having a very wide range of applicability; in ulcerations, infections, specific or non-specific inflammations, penetrated or ruptured eyes, sympathetic inflammation, cyclitis and iridocyclitis, chorioiditis, retrobulbar neuritis, persistent episcleritis, keratitis, non-recoverable foreign bodies and after magnet extractions. No theory is proffered to explain all these results, further than that physiologic activities of an extreme degree are brought into play, and Nature by this aid accomplishes results not otherwise attainable.

Dr. G. C. Savage, Nashville: I believe there is a great field for subconjunctival injections, but the American profession has not availed of the good to come from this line of work very largely up to the present. I became almost scared to death the first time I used the cyanide injections. I was wholly unprepared and the shock to my nervous system was great. Jones has not overdrawn the picture of that swollen face and that chemosed ocular conjunctiva. I would not treat such a case and let the patient go home. Not only would the patient not come back, but their friends would not come. I want these patients to be in a very private room in my own institution, and I want to exclude visitors for a whole week. I believe that

this terrible reaction that comes in these cases, is wherein lies the beneficial effect. There are two objections to the subconjunctival injection of cyanide of mercury. The one I have already emphasized sufficiently; that is the severe reaction. The other objection is the adhesion of the conjunctiva to the sclera. It is as large as the little finger-nail and appears in the beginning to be larger; but it is to be there. If it is possible to get some agent to replace the cyanide — and I think it is — then blessing on the man who will introduce that agent. The improvement in the cases that should be subjected to this treatment is in every respect satisfactory. Especially is this true in the more severe cases of interstitial keratitis, corneal ulcers which seem to be hard to control, and in connection with the other severe conditions that have been mentioned in this paper.

Dr. L. Webster Fox, Philadelphia: I have in my hand an article I published some years ago, in which I quoted from an article by Dr. Charles Stedman Bull, of New York, entitled, "The Present Status of Subconjunctival Injections," published in the *Medical Record* in 1903. Dr. Bull went over the whole field, just as we are going over it today. In 1892 I was in Paris and saw Darier use subconjunctival injections of cyanide of mercury. I said to him, "We cannot use that treatment in America and live." I went to Liverpool and saw Dr. Dickerton, my brother-in-law, use the same drug. I took courage at the results of my friend's experience and tried it in Philadelphia, and I must say that for cruelty to a patient I know of nothing so severe. I have followed out carefully the method described in this article, with an experience that is very encouraging. In addition to the various saline preparations I have used saccharine-saline injections, a preparation which is apparently saccharinate of soda. It is a French preparation. Twelve or fifteen years ago I reported 438 cases, including cases of keratitis, conjunctivitis, iritis, iridocyclitis, vitreous opacities, corneal retinitis and retinal detachments, and my experience has been most satisfactory. I have added the sugar of salts to the various forms of injection and I have found that it modifies to an extent the reaction of the cyanide of mercury, which I have used 1 to 4,000, and the reaction is not so severe and the pain is not so great. I have found that a recent French writer has added brown sugar to his saline preparations, which lessens the irritating effect of the ordinary normal saline and also some of the preparations of mercury.

Dr. A. E. Bulson, Jr., Fort Wayne, Ind.: I want to endorse what Dr. Fox has said concerning the painfulness of these injections. When Darier's work came out I tried the injection of cyanide of mercury, and, notwithstanding the use of acoin, as advocated by Darier and the essayist, if I can judge from the experience of patients it is one of the most painful things a patient can endure. So I dropped subconjunctival injections altogether. Later I found that Dr. Bull was using them in a large number of cases. He said the cyanide was so painful, and he was using, to the exclusion of other remedies, normal salt solution. I took it up again, employing saline solution, but was not able to satisfy myself that I was getting the results I ought to secure, and following the suggestions that Darier had made concerning dionin I thought it might be of use. The protracted pain that occurs after subconjunctival injection of cyanide does not occur with dionin. After a period of three or four minutes the patient is very comfortable. I have not found that the injections are of so much value in the variety of conditions mentioned by the essayist, but in intra-ocular hemorrhage I know of nothing that will produce clearing of the hemorrhage like subconjunctival injections of dionin. I use 30 minims of a 5 or 10 per cent. solution of dionin. The swelling is great, but the discomfort is practically *nil*, and the benefit is far in excess of the benefit from any other form of treatment used.

Dr. William Zentmayer, Philadelphia: I wish to report a clinical experience which seems to demonstrate Dr. Savage's idea that cyanide of mercury injection was responsible for the adhesion between the subconjunctiva and the sclera in a case of detachment of the retina in which I had used injections of saline solution. Large xanthomatous areas appeared over the cornea, producing adhesions of the palpebral conjunctiva. This condition lasted six months. About a year ago I saw the patient after a lapse of ten years. The original discoloration had disappeared, but there was still firm adhesion to the sclera. This would indicate that possibly future trouble might arise from this blocking of the lymphatics by adhesion of the conjunctiva and sclera.

Dr. Thos. W. Moore, Huntington, West Virginia: About nine years ago I used the first subconjunctival injection of cyanide of mercury in a hospital. The patient was pugnacious and roaring with pain. I felt like having the patient confined

until I could leave the state. However, the next day, when the pain subsided, I was astonished to see the result. The patient had come in with the iris hanging out of the eye. He had a very violent irritation and infection. The next day it was cleared up in an astonishing way. There was adhesion of the conjunctiva and sclera following, but a most excellent recovery, and every year the patient comes in to say what a good eye he has. I do not know of anything so good for the treatment, but we must make the injections rather weak. I think it is the violence of the irritation, possibly, that cures the disease.

Dr. R. L. Randolph, Baltimore: I have seen these adhesions repeatedly after injections of sublimate and even with saccharinate of soda, as suggested by Dr. Fox. I cannot believe this condition is entirely devoid of danger. I have never used cyanide, but after Dr. Savage's observations I think I shall try it. I have tried salt solution, bichloride and saccharinate of soda, all with disappointment. In the various forms of keratitis I have been particularly disappointed. It does not compare with the old-fashioned way of treating these eye inflammations.

Dr. S. D. Risley, Philadelphia: I do want to add my testimony of the value of subconjunctival saline injections. I very early in my experience abandoned the cyanide, not only on account of its pain, but on account of the profound reaction which follows. I cannot myself think that such profound edemas are free from danger. The other point I want to insist upon is the more or less permanent impairment of function which must follow adhesions of the conjunctiva and sclera as described in Dr. Jones' paper. The conjunctiva is a very important lymphoid structure, and to destroy this I am sure is wrong, where it must interfere with the nutrition of the cornea itself. I feel, therefore, like giving my judgment against its habitual use, even in more or less dangerous cases. I would not, however, hesitate to use it in the eye as a "dernier" resort. I believe it would be justifiable there, but my judgment is against it except in cases of that character.

Dr. H. W. Woodruff, Joliet, Ill.: My experience has been confined to only a few diseases and only a few drugs. I have never had occasion to regret the use of the cyanide of mercury. Objections to the adhesions between the conjunctiva and the sclera are of no importance, because the cases in which the cyanide is used are only cases of great severity, in which the



loss of the eye is imminent; cases of serpiginous ulcer of the cornea, of infection following cataract extraction, etc. I believe it is in the latter we will find it of most value. Seldom is one able to save an eye infected after a cataract operation, and I have had such misfortunes follow this operation, but have saved them by the cyanide injection. I always use cocaine in the solution and follow it with hot applications made constantly to the eye, and I very seldom have a patient who makes unusual complaints of pain.

Dr. John A. Donovan, Butte, Mont.: My observation of cyanide of mercury is that in infected eyes and in those stages of ulcer in which there is beginning hypopion, and in injured eyes, if one can get the solution in just as the infection is beginning, one can usually check it. Guaiacol dissolved in glycerin is a favorite solution. Pain accompanies its use, but does not last long. I begin my cases with 6 minims and I never exceed 10 or 15 at the outside. If one uses cocaine with 6 minims of the solution and then puts in dionin immediately afterward, keeping on hot applications for fifteen minutes to half an hour, one will not have the enormous reaction or pain complained of to such an extent, and the patient can go home.

Dr. Hiram Woods, Baltimore. My own experience has been that of Drs. Bulson and Randolph. I have not used the cyanide of mercury for injections chiefly because the other fellows did it and I saw what happened, and I did not see that the results were so strikingly great over a good many of the ordinary methods. Dr. Risley says it is a dernier resort. I had a patient 78 years old with serpiginous corneal ulcer. He had a double ectropion and his arteries were as hard as cords. One of my assistants insisted that cyanide injection was the only thing that gave the man a chance. I did not feel justified in using it, so I did a Saemisch operation with very prompt recovery. Except in exudative chorioiditis, I have not personally had much benefit from subconjunctival injections. I have seen subconjunctival injections of salt and of dionin solutions, and I have seen decided results from both of these applications. As to the way in which it does good, I cannot help thinking it must be the violence of the reaction. I have seen several cases of stubborn dacryocystitis in which the reaction was intense, with swelling over the lids and down the cheek, that were followed by a cure. Now, whether it was a coincidence or whether it is the relation of cause and effect, is a question, but the re-

semblance of these cases to those related by Dr. Jones is very striking.

Dr. D. W. Greene, Dayton, O.: Major Smith is an advocate of subconjunctival injections for the cure of trachoma. The severe reaction described here I did not see. This may be a peculiarity of the natives of India. They are given 2 to 10 minims of a 1 to 2,000 cyanide solution, together with a pill of opium about as large as the end of the finger, and are put to bed. I have had considerable experience with dionin in connection with other remedies in the treatment of plastic inflammation following cataract extraction, and my experience with it has been very satisfactory. Of course, I do not suppose any man depends on any one remedy. I have used this in connection with other remedies, so that I am not in position to say how much of the effects could be attributed to the dionin and how much to the other remedies that all use.

Nelson M. Black, Milwaukee: Dr. Jones has stated he has no theory to advance which satisfactorily explains the curative power of the cyanide of mercury injections in the wide range of cases to which he has applied them with success, unless it is the result of flushing out the lymph channels. In reading over his paper, the following hypothesis suggested itself: The anatomical relation of the lymph channels of the eyes and nasal accessory sinuses has not to my knowledge been thoroughly established, but sufficient work has been done to make it appear that the channels that drain both the eyes and sinuses empty into the same main sewer or lymph channel. If such is the case, disease of some one or other of the sinuses will fill to overflowing the sewers draining the eye, the result being some extra or intra-ocular disease. Now, if by filling the conjunctival sac with 30-45 mx. of fluid, will not the increased lymphatic flow from such a head in the ocular channels be of sufficient force to overcome this drawing back at the junction of the ocular and sinus lymph channels with the main, and allow of more drainage of the eye, with consequent improvement in the ocular condition? As a hypothesis, I do not see why it would not apply to the cases of ocular injury as well. The facilities for carrying off infection and the products of inflammatory reaction would be increased by improved lymphatic drainage.

Dr. E. L. Jones, Cumberland, Md.: As to the first objection, I tell them what is going to happen. Cotton is cheap and

I always cover the eye and let it stay covered, so I do not scare the family to death. As to the pain, I spoke in the paper of the use of morphine, and with that you do not get the pain. I have had little children who fifteen minutes after the injection were playing with their toys. One woman with tuberculosis of the chorioid came seventy-eight miles, got the injection, walked back to the train, and went home, two hours afterward. Very seldom does the pain last over ten or fifteen minutes. The adhesions do no harm whatever unless muscle operations are necessary. These cases have grown better. The patient with sympathetic inflammation reported eight years ago was left with a vision of 20/40, pupil dilated and immovable. Seven years afterward that iris was movable and the vision was almost normal.

#### **Sympathetic Optic Neuritis; With Report of a Case.**

Edgar S. Thomson, New York.

*Abst.*—Optic neuritis as the result of sympathetic inflammation occurs in two clinical forms, of which the commoner is associated with iridocyclitis. More rarely it occurs as a simple neuritis, or neuroretinitis without uveal involvement. About twenty cases have been reported, of which the earlier ones are briefly quoted. Sympathetic neuritis is usually a benign affection if enucleation is performed early, but total atrophy is apt to supervene if enucleation is delayed. The cases of so-called sympathetic atrophy are most probably secondary to neuritis. While the condition occurs but rarely, the possibility of the occurrence should always be borne in mind, and patients who refuse to have a wounded degenerated eye enucleated should always be under observation.

Dr. R. L. Randolph, Baltimore: I believe there is an imminent danger in the retention of sightless eyes, particularly those which have become sightless from penetrating wounds. When we enucleate the eye we have before us generally the picture of sympathetic ophthalmia. Fortunately, it is rare, and generally its course is benign, as Dr. Thomson has said. I believe if Dr. Thomson had seen his case several years before he would have found that the vision was impaired, showing the great insidiousness of this disease. I have seen two cases in the past year of slightly-looking eyes associated with some slight impairment of vision in the other eye. In one case, as a boy, bird-shot had penetrated the orbit and had left the eyeball normal and had given no disturbance to the other eye un-

til recently, when the patient had noticed transient attacks of haziness. He came to see me about glasses. I found a slight contraction in the field. He was very much troubled about the necessity of removing the other eye. It was done, however. In another case which I saw about two months ago the injured eye had been the seat of occasional attacks of redness for the last two years. In that case the man was conscious of some loss of vision in the better eye and I suggested its removal. He also accepted the situation and had it done. I think that these cases of eyes sightless from penetrating wounds should always be subjected to examination from time to time to see whether there be any diminution of visual acuity and to see particularly whether there be any contraction of the visual field, and that, irrespective of any result, one may get with the ophthalmoscope.

Dr. E. E. Holt, Portland, Me.: I remember one of my first cases in a school teacher who had a knife stuck into his eye as a boy. It was a perfectly normal looking eye. He never had any haziness of the cornea, but I told him he was liable to have trouble with the good eye. He kept losing sight, and when he came to me as a professional advisor he had lost so much sight in his good eye that I did not advise removal of the poor eye. He had never shown any inflammation in either eye, but had gradually lost sight from changes in the depth of the eye. Eventually his good eye became absolutely blind and he is practically dependent on the injured eye, which has simply quantitative vision.

Dr. James W. Barrett, Melbourne, Australia. I can never see the sense in keeping any eye that has been inflamed and is blind. The particular interest of this subject to me is the relationship of supposed cases of sympathetic ophthalmitis to syphilis. I operated on a patient in Melbourne for cataract who had a severe attack of iridocyclitis, followed some four or six weeks later by the same condition in the other eye. It turned out to be syphilis. The other eye had become affected in consequence of the syphilis, and since that period I have had a Wassermann determination made. I suggest the possibility that the case described here may fall under that category. Another question seems to me to be of great interest. Has anyone here present seen a case of sympathetic ophthalmitis improved after the exciting eye has been excised, after the ophthalmitis has begun? I have, unfortunately, had to deal

with about sixty cases, and in the whole of that record I cannot look back to any successful result once the disease has set in. I would like to hear what the writer of the paper thinks as to the possibility of a syphilitic causation.

Dr. F. H. Verhoeff, Boston: About three years ago Dr. Steindel brought me a case which he thought was sympathetic ophthalmia and thought the sections confirmed it. I examined the specimens carefully and the chorioid showed changes which Fuchs has described. The other changes were such as I have always seen in syphilis and I said I thought probably the case was syphilis. He wrote we later that the patient had developed tabes, so that there seems to be no doubt that it was syphilis. These cases are recorded in the literature as spontaneous chorioiditis. It is doubtful whether we get sympathetic ophthalmia unless there is injury to the eye. I am also doubtful of cases of sympathetic ophthalmia after sarcoma of the chorioid.

Dr. M. H. Post, St. Louis: Twenty-five years ago a man was brought into the St. Louis City Hospital with an injury of the eye, and I removed it and went on treating the patient. The other eye had no apparent evidence of inflammation. The patient insisted to me that his sight was failing in the other eye. Examination of the other eye revealed an optic neuritis. We should be on the lookout for the condition of the other eye, to be determined not simply by observation or the reaction of the pupil, but on the vision of the patient supplemented by ophthalmoscopic examination.

Dr. S. D. Risley, Philadelphia: I have seen but one instance that I am willing to record as sympathetic ophthalmia, and yet there was an unquestioned involvement of the eye previously lost. It is not easy to say whether in the early stages these cases are not, after all, uveal diseases; but in uveal disease of bacterial origin there is apt to be some slight loss in the range of accommodation. There are many other causes which may be coincidental in an eye which has been lost, the eyeball having been opened. There are several things which should put us on our guard—the contracted field of vision without a central scotoma. Optic neuritis may be due to syphilitic infection, as suggested by our guest (Mr. Barrett). In one case in which I had advised enucleation there was a comparative scotoma, due to a diseased sinus. This, therefore, should be excluded. In one instance I saw recovery after the enucleation of the eye. There was the characteristic appear-



ance, muddy iris, iritis, granular condition of the vitreous humor, etc., and in that case, a boy of 12, he recovered. I have observed him recently and he had a perfectly normal field and full vision.

Dr. Samuel Theobald, Baltimore: I recall a case of neuroretinitis which seemed unquestionably to be of sympathetic origin, in which the exciting eye was enucleated and which under mercurial treatment subsided, these cases being more amenable to treatment. Several years ago a patient came to me with a blind eye, his other eye being asthenopic. He had normal vision. He had been advised to have the blind eye enucleated. He had a very considerable amount of astigmatism against the rule. When that was corrected he had no more trouble with the supposedly sympathizing eye.

Dr. Joseph S. Lichtenberg, Kansas City, Mo.: I wish to report the case of a locomotive engineer, aged 42, who was injured by the explosion of a glass water gauge. The case had been treated for fourteen days before I saw it. The left eye showed a traumatic iridocyclitis, with a fine scar from the limbus outward. The vision of the fellow eye was normal. The ophthalmoscopic appearance was normal. The case was put on the usual treatment, with salicylate of soda and hot applications, with no improvement. In about ten days the patient complained of the vision in the other eye, the eye being somewhat inflamed. At that time the ophthalmoscopic appearance was normal. A blush appeared on the papilla, with decreasing vision. The surrounding retina was involved and the vision in the fellow eye sunk to about 20/80 or 20/100. Still the vision in the exciting eye was figured about the same. At the same time the field showed a contraction, concentrically, with no scotoma centrally. Taking this as a guide, I finally enucleated the exciting eye and a prompt recovery took place. In looking up the subject in the standard textbooks there is practically nothing mentioned except by Oxenfeld, who devotes only a short paragraph to it.

Dr. Adolf Alt, St. Louis: I had the honor of reporting a case of sympathetic ophthalmitis to this body in my chairman's address, in which the case gave normal vision of 20/20, with some correction. Two and one-half months after the first sympathetic disease appeared the eye had to be enucleated.

Dr. Edgar S. Thomson, New York: Frequently I have enucleated the sightless eye for cosmetic purposes, thinking

the other eye was normal. Immediately after the enucleation the vision would jump up to 20/15. In these cases there had been some irritation which I had not been able to recognize. The diagnosis has got to be inferential. The questions raised by Mr. Barrett have been eliminated. My case did not give the Wassermann reaction, the nose was carefully gone over, the urine was examined, and in every way any toxic condition which might attack the nerve was eliminated. I cannot see that this improvement can be interpreted in any way except that the supply of toxins had been stopped.

### **Phlyctenular Ophthalmia and Its Etiology.**

H. D. Bruns, New Orleans.

*Abst.*—The ocular and cutaneous tests, especially the very delicate skin test, have shown that many patients with phlyctenules are tuberculous. Even the cutaneous test forces us to admit that from 25 to 10 per cent. are not. The writer's tables show that 36.2 per cent. of his phlyctenular children were not tuberculous. Hamman and Wollman, after 1,500 experiences, regard a negative skin reaction as very strong evidence that the child is not tuberculous. The writer does not believe, therefore, that the results of the cutaneous and ocular tests prove that phlyctenular disease is due to the action of a tuberculous toxin, but only that tuberculosis prevails among children we see in our clinics to a much greater extent than we formerly realized. As tuberculosis has been estimated by means of the skin test to be present in from 71 to 94 per cent., it would be astonishing if we did not find it prevalent among those with phlyctenular disease.

**DISCUSSION.** Dr. Richard J. Tivnen, Chicago: My experience is not in consonance with that of Dr. Bruns, that it is only rare to have opacities seriously interfere with sight, following phlyctenular trouble. My experience is that they are neither infrequent nor rare. After a study of fifty cases of phlyctenular disease as to its etiology, I am not quite in agreement with Dr. Bruns as to the negative role of tuberculosis. The average age of these patients is 12¼ years. Lymphoid complications occurred in 64 per cent.; 20 per cent had a tuberculous family history, and 12 per cent. a personal tuberculous history, active or latent. von Pirquet was positive in 92 per cent. Ocular reaction accompanying the Von Pirquet occurred in 8 per cent. Rise in temperature occurred in 88 per cent. following the first injection. The clinical course,

chronicity, tendency to recurrences, predilection for the poorly nourished, glandular complications and response to tuberculin point to a tuberculous etiology. The failure of a certain percentage of cases to react is not greater than that associated with almost any other of our diagnostic methods, and, in addition, we may not be able to interpret correctly our tests. As explained by Dr. Derby, phlyctenule may be an atypical form of tuberculosis and free from bacilli. Tuberculous victims are particularly favorable subjects for the development of ocular infections. The objection that phlyctenular disease occurs in the non-tuberculous and not in many tuberculous subjects may be answered by saying that it is not always possible to determine tuberculosis. While the tuberculosis theory is not absolutely established, sufficient data has been accumulated to warrant further thoughtful consideration.

Dr. Arthur G. Bennett, Buffalo, N. Y.: I must say that my feeling in the matter agrees largely with the opinion of Dr. Bruus. In the children's hospital, if I am called in a case of phlyctenulosis, I always have a von Pirquet reaction taken and have the urine examined. In every case the urinary examination shows a marked excess of indican, and my feeling has been that most of our cases of phlyctenulosis are due to intestinal toxemia. I look on the tubercular reaction more as a coincidence than as an actually etiologic factor. In Buffalo we have a population of 90,000 Poles, and the children are kept under the most deplorable hygienic surroundings. It is these children who break out with phlyctenulosis. One clinical observation is the most vile odor of the urine. To counteract it, the therapeutic measure outside of the proper feeding which I have found to be of the greatest value is the administration of small doses of sodium of salicylate, 1 or 2 grains three times a day.

Dr. Samuel Theobald, Baltimore: Fuchs and other German authorities call phlyctenular conjunctivitis or keratitis, as the case may be, eczema of the cornea. That in my judgment is the true nature of the affection, and I am thoroughly convinced that phlyctenular trouble is due to the same cause. I had long taught that phlyctenulosis was due to infection from the alimentary canal, and, while such a condition is more likely to occur in a tuberculous or scrofulous subject, it occurs over and over again in children who show not the slightest sign of a tuberculous condition, but cases occur under the bad hygienic

surroundings described by Dr. Bennett. I agree with Dr. Bruns that only in rare instances is it tuberculous. One of the most valuable remedies is a good, energetic calomel purge. It is given at once at the beginning of the treatment, and we find a change for the better at once. As to the tuberculin reaction, some time ago a boy was brought into the office with a typical interstitial keratitis. One of the first questions I asked was, Has the child had any formations in the knees, or nodes on the long bones? They said, "O, yes; he has been in a sanatorium all summer. He has tuberculosis. He was tested at the Johns Hopkins Hospital and the test was positive, and he was treated for that." I put him on the binoidid of mercury and before the eye condition improved the tuberculous knee-joint was gone.

Dr. Hiram Woods, Baltimore: We find that without scientific tests a little improvement in hygiene will help these children to resist the constantly recurring infection from the nose or from the outside. Clinicians are making a careful distinction in children between a tuberculin skin reaction and clinical tuberculosis. Probably 75 per cent. of all children, irrespective of all symptoms, will give a positive von Pirquet. What are you going to infer from that? von Pirquet told me himself that he thought two negative results in children were positive proof of the absence of tuberculosis, but he himself did not attach an enormous importance to the positive result of the reaction as regards clinical tuberculosis. If, on the other hand, tuberculin cures the disease, then we have got some positive proof. Indican undoubtedly represents the absorption of indol, and indol is one of the conjugate sulphates resulting from intestinal putrefaction. Many internists say it is positive proof of intestinal intoxication. Many others say it does not mean that at all. In a recent communication de Schweinitz said he was surprised that the profession had not gotten rid of the fetish of indican. Some clinicians in Baltimore state that after we go over all the other tests we come back to indol as the test of putrefaction. The argument against indican is that patients have these troubles without it; that they must have these troubles from some other cause and get well in spite of the presence of indican; which means that, after Dr. Tivnens' and Dr. Theobald's remedies and those of others, you reduce the indican to a point where the system can tolerate it. I do not believe we can draw dogmatic conclusions from any data in our possession.

Mr. James W. Barrett, Melbourne, Australia: Our own experience has been that of Dr. Bruns and Dr. Woods. It is a disease found frequently in Melbourne, but almost never in private practice. It is almost invariably found in hospital practice. Our population has curious dietetic habits. The diet of children is almost entirely carbohydrate. They have bread and butter and jam and tea for breakfast, bread and butter at eleven o'clock, a fair meal of meat and pudding at one o'clock, another piece during the afternoon, and wind up with tea and bread and butter in the evening. The result is that the intestine must be loaded with cellulose, just as we see among the Egyptians in the Clinics of Cairo. I do not know the habits of the people Dr. Bruns deals with, but the reference to intestinal toxemia interested me very much, knowing what I do of what happens with us. Syphilis has no relation to phlyctenules and I am in sympathy with the last speaker that whatever is the result of the von Pirquet phlyctenule is not associated with tuberculosis, and we have reached the conclusion that the importance of the von Pirquet is when it is negative.

Dr. George S. Derby, Boston: It does not seem to me possible in the light of present knowledge to say that all phlyctenular disease is due to tuberculosis, but evidence is being gradually accumulated to show that the incidence of phlyctenular disease bears a very close relation to the incidence of tuberculosis in childhood. It is well known that only in a small percentage of those affected with tuberculosis do we get the gross manifestations; these children overcome the infection without ever showing signs of the process. That is why so many react to the von Pirquet test. I should like to ask Dr. Bruns, if tuberculosis has nothing to do with phlyctenular disease, why, when we give the subcutaneous tuberculin test at times and also when we introduce it into the conjunctival sac, we get phlyctenulosis as a result. In regard to Dr. Theobald's case in which tuberculosis was blamed for the knee condition, I think the mistake would not have been made if the practitioner had realized that these cases of congenital syphilis had had tuberculosis superimposed. I have had considerable experience with tuberculin in these cases, and I feel very doubtful whether any has been much benefited by its use. Certainly if tuberculosis is in close relation it is as an atypical form, and something which we do not know a great deal about at the present. It has seemed impossible to cure some of the more



severe cases until they grow up and have passed a certain period — 15 or 17 — in spite of all the care in the way of general hygiene that we can surround them with.

Dr. John A. Donovan, Butte, Mont.: In our state school we used to have a great deal of this disease. For the last several years everybody admitted has had the adenoids removed and the children are put under different hygienic conditions from those at home, with the result that I have seen only one case of phlyctenule in three years in the school. In my private practice outside, no remedy is so efficient as removing adenoids.

Dr. H. D. Bruns, New Orleans: All of those who deal with this matter in a practical way have found that it does not do to lay any stress whatever on the positive reaction of the skin test; but a negative reaction, especially in a young person, is the best test that the person is neither tuberculous nor liable to tuberculosis. In the North, cases occur among children. Where I live, grown-up negroes, men 50 and 60 years of age, come into my office with phlyctenules. I have seen big, muscular roustabouts with phlyctenular ophthalmia who certainly were not suffering with any form of tuberculosis known to medical science. Most of these people who have phlyctenule are badly fed. They live on some kind of dry vegetables like cornmeal or rice, with salt bacon. The babies are weaned on bacon instead of beer. French clinicians who have of late been studying phlyctenular ophthalmia say that we can divide these cases into two certain classes. Some are tuberculous and the disease is cured by the injection of tuberculin; but some are not tuberculous and can be cured by regulation of the diet. In fact, some of them go so far as to specify that if certain articles of diet are withdrawn the cases get well. I cannot refine as well as that, but what I do is to cure them with a diet of fresh meat, some green vegetables, and have them out on the river, where they get a good supply of fresh air.

#### **Removal of the Lens in High Myopia.**

Walter Eyre Lambert, New York.

*Abst.*—The paper contains a report of nine operations on five cases, both eyes being operated on in four cases, and only one, as yet, in the fifth. In seven of the operations the Fukala method was used, and, in one patient, the extraction after a preliminary iridectomy in one eye, and a needling and linear extraction after an iridectomy in the other. The youngest

patient was 16 years old, and the oldest 50. One needling only was required for the girl of 16, and from two to four on all the others. There were extensive fundus changes with vitreous opacities in three of the patients; commencing lenticular changes in one, an almost mature cataract in the patient of 50. The best vision obtained was 20/20 in each eye. In the youngest patient, whose fundus was in good condition, and media clear.

Dr. Peter A. Callan, New York: I presume that we are aware of the fact that high myopia is rare in this country as compared with Germany, France and Russia. A great many of us may be influenced by the denunciation of the operation by Donders and von Graeffe. In the Heidelberg conference of 1850, especially, Donders reported it to be a criminal operation. Von Beber of Darmstadt had reported a successful case. The operation was moribund until resuscitated by Fackler, twenty-eight years ago. To my mind, the operation is a perfectly justifiable one, in young people, under 30 or possibly 35. As to the dangers of infection, of course, that holds good for all operative procedures for opening the eyeball, but it is getting less and less all the time when we are more careful. The other great danger is the detachment of the retina. My private belief is that possibly a few more cases occur after the removal of a clear lens than would occur otherwise in these high myopic cases, but if we examine the statistics the percentage in these operated cases is very little greater than in other cases. von Pirquet in 1902 collected 1,176 cases, operated on by twenty-five surgeons, mostly German, French and Austrian. He found 4.85 per cent. of failures. The methods were various. Discission with linear extraction were the most numerous. As to the results, Schweiker had fifty cases in which he operated by discission and linear extraction, with 14 per cent. of detached retinas as a result. von Hiekel with 184 cases by the same method had 5 per cent. So you see it is not altogether the method in the reported cases as done abroad. Very few are willing to depend on simple discission. I have done, all told, about fifteen cases. I have operated in four cases on both eyes at the request of the patient, being well satisfied with the result. I do not think one is justified in operating on the second eye until the patient fully realizes the danger he runs, infection, detachment of the retina, etc. von Hippel collected a number of cases in which he compared the operated and non-

operated cases. He found in the non-operated cases 6.7 per cent. had detachment of the retina. The operated cases had only 5.4 per cent. Fralich collected a large number and he found in the operative cases 3.3 per cent. of detachment, whereas in the non-operative cases he found 2.2 per cent.

Dr. S. D. Risley, Philadelphia: I have taken occasion many times during the past few years in the experience of this section, when papers of this character have been presented, to oppose the extraction of cataract in high myopic eyes, basing my opposition on purely theoretical grounds; that is to say, the well-known pathologic condition of the fundus. I am still opposed to such operation so long as myopia is a progressive disease, and chorioidal disease is progressive, with additional bodies forming or those already formed enlarging. But of late years the question has presented to me other features. For example, I had slowly accumulated in my office for many years cases of high myopia in which for twenty-five years, under persistent observation, the pathologic conditions have subsided; the myopia was no longer increasing; there were no additional bodies forming. The eyes, in other words, were well. But in quite a number of cases I have seen other things transpire. For example, the vision went down without notable increased pathologic changes in the fundus, and when I came to study the lenses carefully the image seen was distorted. The lens seemed to be undergoing contraction changes with increased impairment of vision, and increased helplessness on the part of the patient not due to pathologic changes in the fundus; and in several myopic patients during the last five or six years I have been advising the extraction of the lens and my results have proved that it was justifiable.

Dr. H. D. Bruns, New Orleans: I have had opportunity to operate about eight times. Hirschberg has laid down the exact indications for these operations. It ought not to be undertaken unless there is about 15 or 16 D. of myopia. It should be done in people not over 20, unless there are special reasons. I believe this is important, because the operation of election that offers by far the greater chances of successful result is the operation by repeated discission. It is long, it is trying on the patient and on the surgeon, but the safety is undoubtedly very much greater than the attempt to extract the lens from the myopic eye.

Dr. Linn Emerson, Orange, N. J.: Relative to operating

on the second eye, my patient was a housemaid who recently came to this country and could not get about the streets without being led. She had 26 D. of myopia. I operated on the first eye and with a 2 -2 cylinder she had 20/20 vision. She came back and I operated on the second eye without fully explaining things to her. On the whole, the result in the second eye was equally good. But for the next two years that girl was the bane of my life, because I could not explain to her why she could not read a newspaper, and could not peel potatoes, or do similar work. I will never do an operation on a second eye until I have explained things to the patient.

Dr. William H. Bates, New York: There is another aspect of the question which I would like to call attention to. I agree that this operation is justifiable in certain cases. I can recall one patient operated on fifteen years ago in whom the operation on one eye was satisfactory, but the patient did not come back to have the other eye operated on. I saw the patient last winter with a myopia of 20 D. in each eye, with a vision of about 10/200. She had great difficulty in doing her work and in getting around and was anxious for any relief that could be given. I told her almost at the start that the best thing that could be done for her was to remove the lenses. She was an intelligent woman, about 50, and looked on it favorably. I gave her preliminary general treatment, which included large quantities of water to drink, some atropin, and had her come back. I tested her refraction when she was looking at the 10/200 line with the retinoscope, and it agreed with the glass that she accepted. I had her hold up some fine print with the glasses and at about six inches she was not able to read it. I told her to make an effort to read this fine print at six inches, and while she was doing it her myopia was a great deal less, and afterward when she looked at the card the vision was better than 10/200. It had gone up to 10/100. I had her repeat the exercise until now her vision is 20/40 with 20 D. She said, "Doctor, you have done me a lot of good, but when are you going to operate?"

Dr. Francis Valk, New York: I want to say one thing that may be regarded as heresy. I do not believe that myopia is always due to an elongation of the optic axis; consequently, this implies that we have two kinds of myopia. We have myopia due to elongation of the axis and also myopia due to the curve of the cornea. Now, it is just that condition that

brings up the question of whether we should operate in these cases. If we have a myopia of 20 D., as in Dr. Risley's cases, with chorioiditis, we can operate. He operated successfully because he had a case of refractive myopia. They do well. On the other hand, if we have a case of myopia in which we have a long radius of curvature, and a posterior chorioiditis going on, then it is simply a matter of choice whether you operate or not. One kind of myopia will tolerate operation readily and you will have a fairly good result. In the other condition, axial myopia, you must be very careful in regard to the condition that is going to occur. Dr. Lambert's cases show that they are axial myopia, and were successfully operated on. On the other hand, in refractive myopia you may correct them with proper glasses. I have watched these cases from forty to sixty to seventy, and you will find them with the same glasses with 20 or 30 D. of correction. They do not increase. On the other hand, the cases of axial myopia go on, the same as the story in the text-books.

Dr. Walter E. Lambert, New York: As Drs. Bruns and Risley have said, the greatest possible care should be taken; but there comes a time when these patients demand relief. They are helpless and hopelessly blind, and in these cases I think the operation is justifiable and advisable. In two of the cases mentioned, with changes in the lens the vision was depreciating rapidly, and in one case there was almost complete cataract. In these cases, when the patient is almost helpless, and still there exists in the fundus and vitreous, changes, we are justified because we cannot but take the chance of helping them, and it is my experience that we have helped them very much indeed. As a rule, with linear extraction, the resulting astigmatism is against the rule. In one case the astigmatism was against the rule in one eye and with it in the other. One eye had shown astigmatism with the rule.

#### **Orbital Cellulitis from Disease of the Superior Maxilla in Children.**

William Campbell Posey, Philadelphia.

*Abst.*—Analysis of causes leading to this condition. Recital of two cases of osteomyelitis of the superior maxilla from toxic condition of general system. Anatomy of superior maxillary bone, with illustrations showing its development, and the changes through which the bone passes from infant to adult life. Symptomatology of orbital cellulitis, and photographs



showing several of the sequelae. Involvement of alveolar process of bone, a not infrequent cause of orbital cellulitis. The effect of slight trauma on the orbit, and how bacteria circulating in the blood may infect the site of a contusion endogenously and give rise to osteomyelitis. Tuberculosis and syphilis of the orbit. Citation of cases from the literature, and the reproduction of some of Onodi's photographs of the sinuses in infants, to prove possibility of primary antral disease in children.

Dr. F. R. Packard, Philadelphia: I was very much struck by the choice of title — orbital cellulitis due to disease of the superior maxillary bone — not due to disease of the maxillary sinus. In the 1910 meeting of the American Otological, Dr. Wm. C. Breslin of Brooklyn read a paper on the accessory sinuses of the nose in a five-year-old child, with notes on cases of suppuration of the antrum of Highmore, at and before that age. In that paper he described one or more cases practically identical with the two reported by Dr. Posey. In the discussion that followed, a great majority took the view that there was not such a thing as suppuration of the antrum in a child one or two years of age; that the antrum was not sufficiently developed to permit of suppurative disease, in the true sense of that term. As Dr. Posey said, Onodi has pointed out recently, in agreement with other men who work on the accessory sinuses, that the sinus is appreciably well developed in the first year. Onodi has done more than anyone else to show that the sinus is the first one to be developed. It is present at birth and within a month is a fair-sized cavity, and at a very early age the antrum possesses the same disagreeable characteristics as in adult life, namely, a large portal of entry for organisms and poor drainage. The cases, however, which are reported ordinarily as maxillary suppuration in young children have all of them, as far as I can learn, presented characteristic disease of the maxillary bone, and not the ordinary suppurative sinusitis. I believe the explanation of these cases is to be found not only in the entrance of infection between the teeth, as Dr. Posey mentioned, but also lies in the fact that the child's nose is just as susceptible to inflammation or infection as the adult, and that the large size of the antral opening, which is very much larger in early childhood than in the adult, accounts for some of these infections, and therefore, micro-organisms once getting in either through the tooth channel or the ostium, the large mass of cancellous bone

tissue which undergoes subsequent absorption to form the antral cavity is the kind of bone which is susceptible to osteomyelitis, and other inflammatory bone troubles.

Dr. William C. Posey, Philadelphia: In addition to the anatomic evidence which was here given of the possibility of the maxillary sinus being involved in infancy, there is also clinical evidence, and I cite cases from the literature by Guisez, who has given the picture quoted in the paper by Beauvois, who gives a case of infection in a child fifteen days old, in which orbital inflammation was attended by a copious discharge of pus from the nose, gradually clearing up.

**Sclerosis of the Ligamentum Pectinatum and Its Relation to Glaucoma; With Lantern Demonstration.**

F. H. Verhoeff, Boston.

*Abst.*—Sclerosis of the ligamentum pectinatum with an open filtration angle, in the few cases in which it has been observed, has been regarded as the cause of the associated glaucoma. Its possible significance in regard to Henderson's theory of glaucoma. Report of ten cases, including both primary and secondary glaucoma, in which this condition occurred. The histologic findings in these cases indicate that the sclerosis of the ligament was dependent on the previous existence of peripheral anterior synechiae which became separated. The separation of the iris root from the ligament, when it occurred early, was due to traction of the sphincter pupillae when late, to cicatricial contraction of the atrophied iris. Sclerosis of the ligamentum pectinatum as a cause of glaucoma, therefore, yet remains to be demonstrated.

Dr. M. Feingold, New Orleans, discussed the theories of various men concerning the causes of glaucoma, and said that all were agreed that increased tension was one of the essentials, and he believed that no one theory accounted for it, but that features of the various theories entered into its causation in the different cases. All theories have one thing in common, the discrepancy between outflow and inflow of liquids. This discrepancy can be brought about by increased secretion of aqueous and increased quantity of blood, or by decreased excretion of aqueous and by decreased outflow of venous blood. He mentioned the hypersecretion theories of Donders, Laquer, Bjerrum, Goldzier, Fuchs and others. He also discussed the theory of Henderson, who claims sclerosis of the pectinate or cribriform ligament as the cause of the increased tension. In

several cases of occlusion and seclusion of the pupil in sympathetic ophthalmia there were attacks of increased tension with diminution of vision and the accompanying iris bombé, but the attacks passed off without operative interference and the vision returned to the former useful amount. If narrowing of the angle of the pectinate ligament be the sole cause of the glaucoma, how could these clinical experiences be harmonized? He cited other cases in which one would expect glaucoma to develop, occurring in some, but not in others. He believed that other causes were operative than the sclerosis of the pectinate ligament.

Dr. Walter B. Weidner, New York: Will Dr. Verhoeff explain what he means by sclerosing of the ligamentum pectinatum; whether there is any infiltration there or not; whether there are any cases of hypopion—whether there is any pus there? I saw some deposits in the anterior chamber.

Dr. F. H. Verhoeff, Boston: By the term "sclerosis of the ligament" I mean a thickening of the general framework of the ligament. In these cases there was also new formation of connective tissue on the surface of the ligament. If you will read my report of the cases, you will see that I state why some of the eyes were enucleated. One was enucleated on account of *ulcus serpens*, which was recent. The others were old cases. There were various reasons for enucleating the eye. There was another case with active iritis, but these changes can usually be distinguished from the changes to which I am referring, occurring subsequent to them.

### **Nasal Hydrorrhea; Its Relations to Lesions of the Brain and Visual Apparatus.**

Casey A. Wood, Chicago.

*Abst.* The rather rare condition known as nasal hydrorrhea is not a definite disease, but a symptom of one or more pathologic states. In the majority of cases, optic atrophy more or less pronounced accompanies or follows the discharge from the nose. The visual involvement is, like the chief nasal symptom, generally a part of an intracranial disease that underlies the affections of both nose and eyes. The discharge that flows so copiously from the nose is cerebrospinal fluid and it is just possible that when epiphora accompanies the hydrorrhea the lacrimal discharge may, in part at least, be of the same character. The nasal hydrorrhea usually comes on without apparent reason, is generally intermittent as to amount and time, may

disappear for a considerable interval, or may cease entirely as quickly and mysteriously as it came. If there be any organic disease of the nose, it is, as a rule, merely a coincidence.

Dr. Lucien Howe, Buffalo, N. Y.: I think one of the objects of a section of this sort is not to bring material which we know all about, but these unusual cases which set us to thinking and rereading our old records, and we will find very many things we did not know before.

Dr. W. W. Wilkinson, Washington, D. C.: In his second conclusion Dr. Wood says: "In the majority of cases optic atrophy, more or less pronounced, accompanies or follows the discharge from the nose." This is in hydrorrhea cases. I have seen certainly about twenty hydrorrhea cases, and outside of one or two that developed atrophy I do not remember noticing it. I have known at least two or three persons having hydrorrhea treated for that condition, and as far as I can determine the symptoms were very much as in the cases which Dr. Wood has reported. In his fourth conclusion he says: "The discharge that flows so copiously from the nose is cerebrospinal fluid, and it is just possible that when epiphora accompanies the hydrorrhea the lacrimal discharge may in part at least be of the same character." From an anatomic standpoint we can hardly conceive how the lacrimal fluid can be cerebrospinal fluid or a mixture with cerebrospinal fluid. The very nature of the cellular tissue of the orbit would give us an edematous condition if we had a leakage into the orbital tissue, instead of having hypersecretion from the eye or a lacrimose condition. It has been my opinion of these cases that there were three elements necessary. In the first place, we must have a neurotic subject. In the second place, I consider we have an intoxication of some kind that has aggravated these nervous filaments, and in this view of the cases in which there is a cerebrospinal fluid I consider that there is a latent sinusitis which has very likely destroyed the orbital plate of the sinus sufficient to allow the gradual leaking into the sinus cavity, and that the sudden outflow of this cerebrospinal fluid is not thrown out all at once from the cerebral cavity, but it is overflow from the sinus cavity which has accumulated during the night.

Dr. Casey A. Wood, Chicago: I did hope that we might have some members of the section who are neurologically inclined and also a number of rhinologists who might give us an

opinion on the subject. I agree with Dr. Wilkinson in a measure and I think his objection is well taken. What ought to have been said is that the lesion involves both the nose and the eyes when the discharge contains cerebrospinal fluid. I did not mean to say that all cases of hydrorrhea possess the characters set forth; but those long-continued, watery discharges that are shown to be cerebrospinal fluid, as they form part of a hydrocephalus, which is only one variety of process within the cranium. It will be found that the optic nerve is more or less involved sooner or later, and scotomas, if not central scotoma, will be found in the great majority of cases.

### **Some Early Diagnostic Retinal Signs of Arteriosclerosis and Chronic Bright's Disease.**

Albert E. Bulson, Jr., Fort Wayne, Ind.

*Abst.*—Arteriosclerotic changes may remain general, or become most pronounced in the kidneys, giving the well-known picture of Bright's disease. No arteriosclerosis exists without any accompanying involvement of the kidneys, to a more or less extent. There are early retinal signs which point to arteriosclerotic changes, which may remain general, or show most pronounced effects in the kidneys. High blood-pressure is practically always present in these cases, and adds to the diagnostic importance of the retinal lesions. Albumin and casts are found in those cases in which the arteriovascular changes are most pronounced in the kidneys. Hypertension as an early symptom accompanies the retinal lesions, and both are due to a toxin acting through the blood. The eye lesions, often first discovered accidentally, are important as an early diagnostic sign, and should aid in bringing the patient to an earlier rational treatment.

F. T. Rogers, Providence: The detection of slight ophthalmoscopic changes, such as described by the essayist, is largely influenced by the personal equation of the examiner, and too much stress must not be laid upon changes in the color of the arteries, brilliancy of the light streak, tortuosity of the vessels, or loss of translucency, as these details are always comparative. It is easy to imagine that either one of these conditions may be present and to ascribe it to the diminution of sight.

I would add to the danger signs enumerated by Dr. Bulson changes in acuity of vision, whether or not associated with a fundus lesion. I do not believe that the problem will be



solved without a collective investigation and a study of carefully kept case records.

You and I may believe that we can detect in the fundus signs of approaching arteriosclerosis, but the majority of the profession do not, and demand proof.

Last year at Los Angeles I reported upon the subsequent histories of a large number of cases of retinal hemorrhage, and each case had been carefully traced over a period of from three to ten years, and, if living, the present condition of health was noted, and, if dead, the cause of death. I found that 80 per cent. of these cases died within a few years or suffered from ill health, and that nephritis or arteriosclerosis was the exciting cause in three-quarters of them. Yet, when I argued that these findings warranted the assumption that even slight retinal hemorrhages, whether due to diapedesis, rupture or inflammation, were worthy of our attention, exception was taken by several members, who stated that they did not believe that the condition was at all serious, because they had seen many cases and, so far as they knew, the patients were in good health. The trouble was, they did not know, and the two or three cases reported by Dr. Bulson are worth a thousand reported from memory as in good health, so far as they know.

Dr. S. D. Risley, Philadelphia: The kidney is not only an important factor in the work of the ophthalmologist, but is important from the standpoint of prognosis. To illustrate: A patient for whom I had ordered glasses, making changes as his presbyopia increased, consulted me about changing his glasses. I found his vision reduced to 1/12 in each eye, and that no change in his glasses improved his vision. A cursory examination with my hand and my ophthalmoscope showed that he had a contracted field of vision, and other characteristic changes in the eye. I recommended that he go to his family physician or to some internist, to which he objected. About ten days later a physician who I knew very well called me up during my office hours and asked what I had found in my examination of the patient. I told him and inquired why he asked. He said that the gentleman was in bed with an apoplexy. He had a high tension pulse and there was edema of his retinas. The veins were full, large, dark, wavy and tortuous to the limits of the ophthalmoscopic field. The portals of the nerve were obscured by retinal edema and all the details of the retina were vague. A lady 62 years of age who had been given

glasses four years before with normal acuity of vision came in with vision reduced to 1/5. There was a decided edema of both retina. She had high tension pulse and I took her blood-pressure at once. It was 220. She had a bad headache and felt as though there was a band around her head, and had vertex pain. She tired very rapidly. She lived in one of the suburbs of Philadelphia. I told her I didn't think it was safe for her to go on the street or to go home, and I persuaded her to go to a hospital. I called an internist and together we treated her. She is still living, after four years, but a long series of weeks of invalidism followed her visit to my office. In the early stages of a commencing arteriosclerosis, before atheroma of the arteries has taken place, these people are in danger of rupture of their blood vessels. Often we see them with spread-out hemorrhages in the chorioid and retina.

Dr. Otto Landman, Toledo, O.: We can have a very high arterial tension without any decided changes in the vessels of the retina. Barker of Johns Hopkins, in a paper published a few years ago, was one of the first writers to call the attention of the profession to the fact that we can have an exophthalmos with high arterial tension, and fatal lesions of the kidneys without any decided changes in the retina. A short time ago I saw a woman who had been a patient of mine for a number of years and who had a refractive error. She came complaining of headaches and some dizziness, and thought perhaps there was a necessity for changing her glasses. She was myopic, had a staphyloma, but there were no retinal changes. The blood-tension was 280. She was about 27 years of age. There was a marked exophthalmos and examination of the urine showed that she had a marked nephritis. Had I not known that albumen was present and that there was associated with this a high arterial tension, I should have declared that the fundus was normal, but there was just a slight haziness of the disk, and I concluded that that was the result of high tension or changes in the vessel, but I could find no changes whatever in the vessels. She had a compensatory cardiac hypertrophy and in eight months she was dead.

Dr. Allen Greenwood, Boston: A very important part of the work of the ophthalmologist is the examination with the ophthalmoscope of the fundus in every case that comes before us. We will find in the fundus in presbyopia, frequently, changes in the arteries when there is absolutely no evidence

of any trouble in the kidneys; but if these changes are found, the patient sooner or later will develop changes in the kidneys. Twelve years ago I read a paper in this city on albuminuric retinitis, two or three years later on obstruction of the retinal arteries; and I have followed this subject of blood-pressure. At my clinic in Boston, and in a hospital of nearly a thousand patients, the number of cases of arteriosclerosis in its early stages that I see, always accompanied by high arterial tension, is very great. I think physicians today are awakening to the importance of these suggestions from ophthalmologists.

Dr. Wendel Reber, Philadelphia: We do not look at these cases carefully enough. I was interested in what has been said about people who come in for correction of their refraction. The pressure in the retinal vessels in many cases is practically normal. When that has once been ascertained, the deviations can be easily learned. If this is true, then the ophthalmologists can often see the first changes before the internist expects them. On the other hand, we must not forget the dictum of Oliver, that arterial sclerosis is a general disease with a tendency at times to localize itself; so that we may not see retinal changes and yet there may be marked renal disease. The general practitioner is wiser and we do not see the changes first as often as we used to. Frequently in a study of the arterial and venous crossings of the fundus we fail to seek for the little localized areas of edema which Dr. Bulson speaks of. These are found before the stage of the cork-screw artery or the brick-red disk. Another class of cases which I have had the pleasure of studying is incipient locomotor ataxia, which shows elongation in the arteries and veins. It is one of the commonest observations in my office. Presbyopes who show unequal accommodation, sluggish pupils, will almost invariably show pressure at the retinal vein crossings. I agree thoroughly with Dr. Rogers in the matter of individual interpretation in the early stages of this disorder. The moral of the paper itself is that the early changes are the important ones, for, once established, that patient is doomed; not necessarily in two years, but they are doomed to a life of reduced efficiency and will frequently retire from active life and there is little we can do to restore them to their full efficiency.

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind.: I am glad every one of the speakers has corroborated what I had pointed out in my paper. We have all made diagnoses of albuminuric

retinitis, high arterial tension and sclerosis, but it is to the very early manifestations and their signification to which I wish to call particular attention and how they are associated with certain general manifestations. Whenever we find these, it is our duty to point out the danger in the case, take the blood-tension, have the heart carefully examined and have a very thorough chemical and microscopical examination of the urine made. It is the combination of manifestations which makes the picture which sometimes tells us the prognosis in the case. It seems to be that a persistent asthenopia may be of some significance as a manifestation of some of the very early changes I have pointed out in this paper, and as others have pointed out in describing some of these early retinal lesions. I do not believe we as ophthalmologists are doing justice to our patients by doing a careful retinoscopy and testing them with test lenses, and not going over the fundus carefully with the ophthalmoscope for these minute lesions. Many cases afterward drift to the general practitioner with well-advanced arteriovascular changes which we might have detected and perhaps have saved for a longer period of time had we been a little more diligent in our early ophthalmoscopic examination. I want to make a plea for more thorough ophthalmoscopic examination in connection with refraction work, and to impress the importance of taking the blood-pressure. I think the blood-pressure apparatus is just as necessary in an ophthalmologist's office as the ophthalmoscope.

#### **Visual Disturbances from Distant Hemorrhage.**

William Zentmayer, Philadelphia.

*Abst.*—Of comparative rare occurrence. Analysis of reported cases. Effect on the field of vision. In a very considerable percentage there is marked contraction of the superior and inferior halves, simulating hemianopsia; true homonymous hemianopsia, central scotoma and peripheral contraction are also seen. There may be no ophthalmoscopic changes, or there may be optic atrophy, neuritis, papilledema. Prognosis grave. Most frequently follows hemorrhage from the stomach and bowels, and uterine hemorrhage. Condition of patient at the time of hemorrhage an important factor. Pathogenesis varied. Probably in a majority of cases it is due to degeneration of the ganglion cells of the retina, as the result of ischemia. Various theories. No recent pathologic studies. Treatment—prophy-

lactic. Hypodermoclysis and intravenous injection of blood-serum advised.

Hiram Woods, Baltimore: This paper belongs to a class which has from time to time engaged the attention of the section. Its practical importance lies not in frequency of the cases considered, nor in any successful therapeutics suggested. It deals with certain end results of remote troubles, and sets forth, so far as possible, concomitant conditions. It does not draw definite conclusions which furnish satisfactory explanation. Nor does this lessen its value. There is no part of ophthalmology which has not been advanced by studies which at first cast doubt on accepted reasoning. This stimulates wider and more careful observation, sets more men to thinking, and so, after while, a nearer approach is made to the truth.

The essayist insists upon carefully noting all conditions present and shows how this leads to the use of modern laboratory methods of diagnosis, and examination of the patient by trained specialists in all departments of medicine. This is necessary because blindness from distant hemorrhage is very rare, and profuse hemorrhage very frequent; consequently there must be something beside the hemorrhage. Toxaemia is to be considered, because (1) toxic symptoms are noted in all the troubles producing the hemorrhage-duodenal ulcer, uterine disease, etc.; (2) toxaemia is common in the disorders for which venesection is done, and venesection has been followed by blindness; (3) the variety of blindness observed is such as we see in toxic conditions—central scotoma, field scotoma, hemianopsia, etc. It is not claimed that this is entirely satisfactory; but it is suggestive. Even in cases of blindness following hemorrhage from tooth extraction, when the individual was thought to be in normal condition, there is still ungiven the reason for the hemorrhage. We know very little about the causes of profuse bleeding after such slight injuries; but its occurrence certainly means that something is wrong, that the individual cannot be given a clean bill of health.

Regarding the pathology of the blindness, the essayist quotes Gowers and DeLapersonne to the effect that the pathogenesis is not the same in all cases; Wildebrand and Sanger—that we know nothing definitely about it. He also lays stress upon the work done on animals by Holden. This demonstrated atrophy of the ganglion cells of the retina; but Holden himself is not satisfied with the evident failure of this to explain all



cases. Weeks gives as the only explanation "degeneration of the ganglion cells, primarily because of interference with their nutrition," and says it is today fully recognized that this is the cause of the blindness. Diagnosis of this degeneration is impossible. Atrophy of the retina, on the other hand, affords evidence in narrowing of the vessels, their conversion into white strands, etc. Fuchs gives, as causes, protracted inflammation, embolism, thrombosis. In such cases the nervehead itself shows secondary atrophy. It is worthy of note that Fuchs does not mention profuse distant hemorrhage as a cause of *retinal* anaemia or atrophy. He does, however, give, as a cause of *Optic Neuritis*, "Acute anaemia after great loss of blood, the most frequent variety being that due to hemorrhage from the stomach and to metrorrhagia." In other words, Fuchs puts the primary ocular manifestation of the distant hemorrhage in the nerve. Since the optic nerve is affected by intra-cranial lesions, cortical, basal, nuclear, etc., we are often forced to wait for focal symptoms before we can explain a papillitis or atrophy. When they come we may see visual defects characteristic of toxæmia or of one of several focal troubles. If we assume degeneration of the retinal ganglion cells as the cause, we can, of course, explain the secondary nerve atrophy, thread-like vessels, etc. But we do not explain the clinical character of the blindness in a number of the reported cases. In this connection the views of Von Graefe, Carlini, Leber and others, as embodied in the paper, reinforced, as they seem to be, by Fuch's classification, point to intra-cranial or optic nerve lesion as the starting point. Twenty-four cases are appended from literature to the paper. The ophthalmoscopic findings are not given in three cases, and in one they were normal, but in the other twenty there was definite nerve lesion-papillitis, post-nuritic atrophy, simple atrophy. This, to my mind, strengthens the essayist's hypothesis that retinal ischaemia, with degeneration of the retinal cells, may account for cases showing peripheral contraction, and possibly some of the cases of central scotoma; but that retro-bulbar neuritis, or neuritis with secondary atrophy, due to a variety of intra-cranial lesions, more thoroughly explain clinical findings.

Another hypothesis is possible, and it corresponds somewhat closely with the theory of cell degeneration from ischaemia — the only explanation based on animal experimentation. So far as I know, there is no reason why the cortical cells should

not suffer from ischaemia as well as the retinal. Case histories indicate that in a certain number nerve lesion is observed late. Samelsohn's explanation of optic neuritis is given by the essayist. "With a refilling of the cerebral vessels the fluid is forced into the lymph spaces — causing an optic neuritis, with an increase in the interstitial tissue and pressure on the central vessels, and finally optic atrophy." This order of pathological changes might explain the hemiopic cases on the theory of ischaemia. Some vision was spared because the secondary atrophy was slight, while the cortical cells were killed by lack of nutrition. Again, degeneration of retinal cells would be explained by cutting off of nutrition through pressure on the vessels during the atrophic process in the nerve.

Dr. E. C. Ellett, Memphis, Tenn.: Two years ago I published a paper on a case similar to this, which was interesting not only on account of the changes in the optic nerve, but there were also pigmentary degeneration of the retina associated with retinitis proliferans. The case was observed in 1903. The man was quite a sport and drank a good deal of whisky, and ultimately died of uremia, so that I presume at that time he had a nephritis. He gave a history of hemorrhage, but he and his physician did not agree as to where the hemorrhage was from. He said it was from the bowel and the physician said it was from the genito-urinary tract. He was in bed about three weeks, and it was three weeks after the hemorrhage before I saw him, when he complained of blurring of the vision in one eye. I examined the eye-ground and could not find anything to explain the blurring. Unfortunately, I did not take the field of vision. He was going South for his health and I referred him to Dr. Bruns some two weeks after my visit. Dr. Bruns found a few retinal hemorrhages. In this case we had a general hemorrhage or hemorrhages followed by edema, and then hemorrhages of the retina not coming on for some weeks. As a result of this hemorrhage a degeneration of the retinal ganglion cells followed, that in time leading to atrophy of the retina and optic nerve. As features of the atrophy of the retina we note liberation of retinal pigment with massing of it in the intercellular spaces and vessel walls in the degenerated area. The irritation of the retinal hemorrhages produced a proliferation of the retinal connective tissue elements. In the eye-ground the pallor of the nerve and wasting of the vessels can be seen, while the accumulation of retinal pigment

in a ring shape around the disk marks the extent to which the retinal degeneration had approached the nerve, near which, of course, nutrition was best reserved. Within the pigmented ring the retinal epithelium is preserved. Outside of this ring the chorioidal circulation is made visible by the removal of the pigment layer of the retina.

Dr. Samuel Theobald, Baltimore: It is known that after a big loss of blood there is a tendency to the development of thrombosis and the thrombus is apt to occur wherever there happens to be some pressure, some point of resistance to the flow of the blood, the tendency of such thrombotic formation being due probably partly to diminished pressure of the blood and partly to alteration in its character. The theory I suggested was the result of a case I had and recorded several years ago, that the point of resistance was at the lamina cribrosa. The altered character of the blood and lessened *vis a tergo* meeting the increased intra-ocular tension at the lamina cribrosa produced a condition well adapted to the formation of a thrombus, and I suggested to Dr. Zentmayer that that probably accounted for a certain number of these cases. In the cases I reported there was a neuroretinitis, blocking of the disk, retinal hemorrhages, etc.

Dr. William M. Sweet, Philadelphia: I might mention the case included among those reported by Dr. Zentmayer. He was a man of 55, quite heavy, well nourished, never had had any sickness. He started to walk from his house to his work, but dizziness and muscular weakness compelled him to return home and go to bed. He took magnesia and during the night had a large movement of the bowels which consisted almost entirely of blood. A second hemorrhage occurred later. On the sixth day the vision became blurred, with loss of perception of light in the left eye and only light perception in the right eye in a small area to the right of the fixing point. The disks were pale, the nerve margins slightly hazy, retinal arteries moderately contracted and the veins full but not tortuous, and the retina edematous. During four subsequent years of observation no vision returned in the left eye and there was only a slight improvement in the preserved field in the right, which was about 15 degrees wide and extended temporally from the fixing point to the 40-degree line on the chart.

Dr. Adolf Alt, St. Louis: The case referred to by Dr. Zentmayer of blindness after hemorrhage was similar to a

case under my care. He was a strongly built man, the driver of a brewery wagon. What other diseases he may have had I do not know. He came to the hospital on account of an ulcer of the stomach. While there, lying in bed, he had a severe hemorrhage from the stomach, so severe that he became unconscious for some time. When he awaked he was blind and I was called to examine his eyes. There was an absolute ischemia of both eyes. It was a day or two after the occurrence that I saw him, and with one eye he counted my fingers perhaps at six feet. With the other he saw nothing at all. I have had the man under my observation since. The stomach has been treated by the general practitioner. I have given him iron, strychnin, and so forth. In this case quite an appreciable amount of sight has returned. In the eye which was wholly blind he counts fingers now at almost eight feet in a very small central field. The other eye has now 20/20 vision, with correction of the myopia and astigmatism and without correction has 20/40 in a small field, which, however, is larger than it was originally. Originally it was 10 or 15. Now it is between 15 and 20, particularly on the temporal side, and he walks about better, but like a man with a periscopic field of vision.

Dr. William Zentmayer, Philadelphia: Dr. Theobald, your case occurred in the earlier series. Can you tell me whether one or both eyes were affected?

Dr. Samuel Theobald, Baltimore: It is nebulous in my mind, but my recollection is that only one eye was involved.

Dr. William Zentmayer, Philadelphia: In only about 12 per cent. was there monocular blindness. These are the only cases that could be explained by thrombosis. I think Dr. Alt's case was caused by a thrombus carried in the circulation. The same thing occurred in the practice of one of our Philadelphia men in which there was blindness following an intranasal operation. Dr. Alt's first case was ischemia of the retina, like quinin blindness, with improvement.

**Address: Provision for the Proper Teaching of Ophthalmology in Medical Schools.**

Edward Jackson, Denver.

*Abst.*—Modern ophthalmology has developed to a science and art, the mastery of which claims the lifelong labor of our best workers. Its literature, its diagnostic procedures and its operative technic require as much time and as careful training

as other branches of medicine. The provision of sixty hours in the recommended medical curriculum is admitted to be utterly inadequate. Ophthalmology is now learned by self-instruction, with such aid from books, clinics and teachers as the individual student chooses. The need of trained ophthalmologists is great enough to justify provision to meet it. From 200 to 400 per year are needed to keep up the supply of competent oculists for the population of the United States. The medical schools already considering the supervision of their students, through a fifth or hospital year, should at once provide for a definite adequate curriculum in ophthalmology, which still might utilize all present opportunities for instruction in ophthalmic science and art.

Dr. S. D. Risley, Philadelphia: I hesitate very much about saying anything which may call your attention away from the statements made in this admirable and timely paper. The more I have thought over the subject the more difficult it is to formulate any method by which this teaching may be carried out practically. The paper is in some respects very encouraging, and in others most discouraging. Sixty hours devoted to the study of the science of ophthalmology! I have spent my professional life in the study and practice of things which were not so much as mentioned in my course of instruction in the University of Pennsylvania. And now sixty hours is devoted to it and a thousand hours devoted to the study of medicine and general surgery. The intricate questions which are raised in my mind or as outlined would keep a man as a student. Last night some of us heard a protest against the four year course when it was suggested that a fifth year be added to the general curriculum in our medical schools, because, forsooth, if the man is kept until thirty or more as a student he has passed many of the years of enthusiasm which this gentleman ought to be devoting to entering on the business aspects of his professional life. Now, if we add five years to our course of medical instruction and insist on this preliminary training which the medical schools are now insisting on properly, the boy who shall complete his cultural course of instruction beginning at 17 gets his degree when he reaches his majority. Add five years in his general medical course and he is twenty-six. He spends at least a year or eighteen months in a hospital and he is twenty-seven and a half. It was stated last night that the average medical student in the United



States gets through at 28 years of age, and in Germany at 29; and if we are to add a year in ophthalmology before we permit him to use the ophthalmoscope in practice, he is 30 years of age.

Now, the ideal ophthalmologist, to my mind, is, first of all, the wise physician, specially trained in ophthalmology; and if he is not a physician educated and trained he is not fitted, as we all know, to treat the eye. We cannot take the eye out and treat it alone, as we saw by the admirable papers this afternoon and the discussions of them. The man must be a doctor. Now, how shall we take that trained physician and make an ophthalmologist of him?

I wish to say that I believe the course suggested by Dr. Jackson is the best we can devise at the present time; that the polyclinics in the first place should give a more elaborate course with broader requirements and with greater discipline in the bestowal of the emoluments after they have undergone a course of instruction; that they should not be allowed to receive a diploma or certificate of efficiency until they have earned it. In the long run it will be to the credit of the institution that does so and to the individual who receives such emolument.

In the next place, I think all of our large medical schools should add to the curriculum a post-graduate course in ophthalmology extending over at least a year, and that this course should not only be a didactic course in the science of ophthalmology, but that it should be accompanied by ample clinical facilities, because ophthalmology cannot be studied in the classroom; it must be studied in the clinic room, with opportunity to see large numbers of patients.

Dr. F. C. Todd, Minneapolis: Dr. Jackson's admirable paper shows that he has thought deeply upon a subject which is so timely and important that it demands consideration. It suggests, 1st, the better teaching of ophthalmology to undergraduates, and, 2nd, leads up to a plan for the better preparation of specialists in ophthalmology, and it is from these two aspects that he has considered the teaching of ophthalmology.

In the matter of teaching undergraduates we have to bear in mind that we are undertaking the preparation of general practitioners, in which we are expected to teach the student, 1st, those things in ophthalmology which have a relation to, or a bearing upon, the diseases of a more general character.

Thus, for example, he should be taught ophthalmoscopy that he may be able better to make diagnoses. And in this connection I dare say that today in many schools things are being taught in such departments as medicine and neurology that will prove of less value to the practitioner when dealing with his patients and endeavoring to make a diagnosis than would be a sufficient knowledge of ophthalmology, which the time now allotted to teach the subject of ophthalmology does not permit.

Secondly, if the general practitioner is to serve his community properly, he must learn to treat the common and simple eye diseases which he may safely treat.

Third, he must have sufficient knowledge to properly diagnose those diseases that might produce blindness, that he may send them to an expert or treat them himself in such a manner as to prevent blindness or, at least, not to cause it by improper treatment. And he must be prepared to do the emergency work that will come his way. He must, for instance, if no expert is at hand, know enough and how to do promptly an iridectomy when a prolapse of the iris has occurred as the result of a penetrating wound of the cornea. I believe that there are more eyes becoming blind today because of the lack of knowledge and training of our general practitioners in ophthalmology than results from ophthalmia neonatorum, since that disease has so decreased in our country as a result of the admirable campaign of our colleague, F. Park Lewis.

All this we cannot do in fifty hours, and hence we must select the most important part and leave out the rest until such time as the medical course shall have added the 5th clinical year.

It is for this reason that we cannot teach refraction to undergraduates excepting as an optional or elective course. At the University of Minnesota we have adopted a fifth, or clinical year—beginning with the class entered in 1911. This will consist of a year of clinical work in a hospital of recognized standing in which the work of the student will be under the supervision of the faculty. During this year, also, the student will be given out-patient service. During this year we hope to have the opportunity to pick up the loose ends and better finish the incomplete product. This year should serve for the fuller teaching of the things the general practitioner should know concerning ophthalmology and the other specialties. So much for undergraduate teaching.

As to the preparation of the ophthalmologist. He now has no course excepting what he may choose to take, and the suggestion of Dr. Jackson surely is timely that our universities that are equipped with the proper machinery should provide a systematized course of instruction of a definite character and time which shall lead to a degree that we may be able to distinguish between the properly prepared ophthalmologist and the six weeks' specialist without first having to try him out at the expense of the eyes of the community in which he practices.

Dr. T. Chalmers Fulton, Philadelphia: My personal opinion is that every man who essays to be an ophthalmologist should first have a reasonable degree of general medicine. I am in favor of having a man practice general medicine and become an all around medical man first, but I would advise that man to commence early with the use of the ophthalmoscope, for the reason that after a certain period of time we cannot educate the muscle of accommodation in the use of the ophthalmoscope. We all know that if we are absent for any length of time from our work and from the ophthalmoscope how hard it is to get our ophthalmoscopic legs on again, so to speak. I personally favor adding a year to the course of training in ophthalmology. I would be in favor, as has been suggested by my predecessors who have spoken, of making a special course as has been outlined by the first speaker, and at the end of that time having the men who aspire to practice ophthalmology pass a special examination by a special board, and after the successful passage of that examination to have a certain degree, say, for instance, O. S., Ophthalmic Surgeon, or Oph., Ophthalmologist, or something of that kind. The object of that suggestion is to do away with the optometrists. My view is that we must have a special degree to designate the ophthalmologist and I would be in favor of having the American Medical Association take action in regard to the matter and try if possible to have a board of examiners, so that no man or woman would be permitted to practice ophthalmology until properly qualified.

Dr. Edward Jackson, Denver: The question of lengthening the period of student life is a very serious one. In the National Education Association there is a committee that has been for some years working on the problem of the reorganization of secondary education, with the idea of getting students into college earlier, and condensing the ordinary college course,

principally by recognizing that a large part of the medical course may have a cultural value that would entitle the student to recognition as a scholar for the bachelor's degree.

If we take the student as entering college at 17 and pursuing there a six years' course it will make him 23, and then adding a year of work in ophthalmology he will be ready for active work at the age of 24, and that probably is pretty nearly the average at which a student should enter into practice.

I think the situation is more hopeful than Dr. Risley seems to believe. The course in ophthalmology in Oxford University has in a way been successful, although conditions there are not favorable to success, on account of the situation of Oxford and also some of the traditions that they have to respect in any course that is given there. The University of Liverpool, one of the younger, less well established, but still a very important technical institution, has taken up the matter and is giving a similar course, and I think it likely that other schools in the United Kingdom are following their example.

In this country the University of Colorado has undertaken to give such a course based on a year of clinical work and the necessary teaching to give the degree of doctor of ophthalmology. That is the degree that is given at Oxford. From information that I have of that course, two or three other of our best and foremost universities and medical schools will have established similar courses, and from the very widespread interest that has been expressed I am certain the time has come for such a move and will be supported.

#### **Cataract Extraction with Corneal Suture.**

Edward C. Ellett, Memphis.

*Abst.*—This is a report of thirty-two cataract extractions, done after Kalt's method of corneal suture. The operation is considered under the following heads: The introduction and removal of the stitch; accidents; the control of iris and vitreous prolapse by the stitch; the toilet of the wound; secondary iris prolapse after corneal suture, the course of healing; and results. The paper is not presented as a brief for the operation, but as a result of this experience with it, and a consideration of its advantages and disadvantages.

Dr. C. D. Williams, Boston: My father, W. H. Williams, used the suture in the cornea. He preferred the corneal section known as the Le Brun section, which was made a little inside the transparent part of the cornea, passing across so as

to clear well the pupil, giving a large corneal wound. The suture was then placed at the apex of that cut. The success of the operation depended very largely on the needle used. The needle was flat, with an extremely sharp point and the cutting edge  $\frac{1}{3}$  of the length of the needle and as sharp as a cataract knife. The needle was  $\frac{1}{4}$  inch long and was held by an ordinary forceps with straight points about  $\frac{1}{8}$  inch wide, strong and roughened on the surface. There was no catch and no jump when the forceps released the needle. The suture was a single strand of the finest sewing silk. It caused very little irritation. It was removed generally on the third day and kept the edges of the corneal wound in apposition until the process of healing had glued them together, the wound being entirely in the cornea there was very little trouble from iris collapse and he generally avoided attempts to remove the first part of the cortical substance, his idea being to remove the lens and then let the fragments remain, putting in atropin and getting the ordinary solution of these cortical fragments. The results he got were very satisfactory. Dr. Post can tell you something of the operation, the healing and the question of irritation from the stitch. The first cases reported were in 1867 and there was no cocaine anesthesia. A number of cases were operated under ether, but a number were also done without any anesthetic. The insertion of this suture was not easy. It required very delicate handling, and for that reason was never very generally adopted.

Dr. M. H. Post, St. Louis: Historically I think the operation referred to on my father occurred in 1864. The operation was done without an anesthetic and with no iridectomy, and was done at different times on both eyes. The result was ideal, with perfectly mobile pupils and with vision normal. The operation was done when he was about 54 years old. He lived to be 76 years old and after the operations which had to be done in connection with the first operation, a needling, the eyes were never subjected to anything but the fitting of glasses, and up to the time of his death he read with perfect ease, comfort, and with very great accuracy. At the time of the operation he was confined to bed and, as I recollect, his hands were tied. He said the pain of the operation was nothing compared with the pain of confinement to his back with his hands tied down.

Dr. Mark D. Stevenson, Akron, O.: I have had experience



with this method in only five cases. I have made both suture canals parallel and about 2 mm. apart in a horizontal direction. I try to make the section nearest the corneal suture, so that a light lip of conjunctiva may lie over the section. With the T-shaped suture canals of Kalt the threads will form a triangle when tied. When the suture canals are parallel these threads will form a quadrangle and the threads will pull side-wise, which will make them hold better. Tight suturing is not necessary. The cut edges of the wound are pulled against each other with no tendency to overlapping. I have not found it difficult to insert or remove the sutures. I administer bromides before the cataract operation as an antispasmodic and to quiet the patient. A hypodermic of morphin is also given shortly before operating, which prevents squeezing and blepharospasm. I let the suture patients sit up earlier, which secures better bladder and bowel evacuations and is beneficial. The suture gives a feeling of confidence.

Dr. William H. Bates, New York: In 1896 I heard of this suture and in the pathologic laboratory of the College of Physicians and Surgeons did some experimental work on the rabbit. It is very difficult to remove the lens from a rabbit. The cornea is about  $\frac{1}{8}$  of the thickness of the human cornea, the lens of the rabbit is very much larger than that of the human eye, the anterior chamber is deep and the operation is altogether very difficult, and during the healing afterward ordinarily one obtains a tremendous amount of reaction and a very dense secondary cataract. I found very soon that I would need more than one suture, generally five or six, or sometimes more, but I was able to produce a water-tight closure of the wound and then by restoring the anterior chamber with normal salt solution in favorable cases I was able to obtain at the time of operation a clear, round, dilated pupil, and the healing followed without the formation of much if any secondary cataract. I read a paper before the Ophthalmologic Section of the Academy of Medicine, recommending that this suture be used as was advised by Kalt and Dr. Williams before him. Dr. Herman Knapp told me that Schweiger had tried it on some thirty cases, a report of which was published in the *Archives of Ophthalmology*, but he had abandoned it. He said, "Why would you use it in the human eye when we get such good results with the old-fashioned operation, and the suture does not offer any advantages. It complicates the oper-

ation." I tried it on the human eye and I must confess that I have abandoned its use, and believe that it is generally unnecessary.

Dr. E. C. Ellett, Memphis, Tenn. I would like to acknowledge my indebtedness to Dr. Bates' paper to which he has referred for a good deal of the information of what had been done on this subject. If I remember rightly, Dr. Bates was under the impression that this in and out suture would not answer, because instead of producing apposition of the edges of the wound it would turn them in, and he advocated through and through suture; but that probably was due to the difference in the thickness of the rabbit's and the human cornea and the thinner cornea might readily be turned in that way, but I do not think that is apt to occur with the human cornea.

#### **Preparatory Capsulotomy in Extraction of Immature Senile Cataract.**

Percy Fridenberg, New York.

*Abst.*—Rapid maturation of the incompletely opaque lens in adults, as a result of extensive but not deep incisions into the anterior capsule, twenty-four hours, or less, before the extraction operation, offers a means of saving our patients much time, and facilitating the complete removal of cataract, with a minimum of irrigation, or similar means of removing debris, and the promise of better visual results. A historical sketch is given, with some remarks on the rationale of Homer Smith's procedure, and a suggestion to supplant his crucial incision by peripheral cuts, so as to allow, later, excision of a central piece of the capsule with forceps. The writer desires to have a general discussion of the pros and cons of preparatory capsulotomy, and the experience of the members of the Section as to results, and possible complications.

Dr. Homer E. Smith, Norwich, N. Y.: Dr. Fridenberg's parallel dissection, in my opinion, will prevent the point I wish to make. He makes two parallel incisions in the capsule and afterwards uses the capsulotomy forceps. The capsule will retract along the line of the incisions and prevent the entrance of the aqueous between the capsule and the cortex, which hastens the maturation of the lens. Therefore he will have a sticky cortex. If the elastic lens capsule be incised it will gape; if cross-incised, it will open, the size of the opening depending on the length of the cross-cuts. A capsulectomy

therefore insures no larger opening than does a crucial capsulotomy of equal size in the mid-pupillary space, and, moreover, it is the less scientific surgical procedure, as it means tearing and not cutting. The point that high tension may develop over night is well taken. It happened twice with me, but was most probably due to the mydriasis and not to the swelling of the lens. Angelucci's fixation without speculum was done and no untoward results followed. Eserin has been used since. I do not advise it as suitable for every cataract extraction, but in my experience it has always produced maturation of the lens, which has been extracted safely.

Dr. Howard F. Hansell, Philadelphia: I feel that I have no authority to speak very authoritatively on this operation, because I have performed it only five times, but I want to say that in those five operations I have been gratified beyond expectation in four, and I have come to consider that for the immature nuclear cataract, the kind that requires so many months and years of delay for its maturation, this operation can be done within twenty-four hours after the capsulotomy with perfect safety and assurance that the cortex of the lens will not be left behind. I have had the opportunity of doing four of these operations. The first patient was a physician, aged 48, who had been waiting for two years for the cataracts to ripen and his vision had gone down so that he was unable to continue his practice. On May 17 I did the capsulotomy and the extraction on the 18th. The pressure was only slightly increased. On the day after the operation the eye was almost as clear as it was before. The lens came out entire. Healing was normal and in two weeks he went back to his home with vision 20/20 with a correction of +11. In the case of a woman aged 48 the capsulotomy was made on the 29th and the extraction on the 30th. It was the same sort of cataract, a nuclear with dense cortex. The extraction was done without accident with perfect removal of the entire lens. The next patient was a man aged 51. When he was brought to the operating table for the extraction of the lens, the pupil was dilated and I felt that the operation was not justified, because the nucleus only was opaque and the cortex was clear. However, the lens also came out entire. It was most surprising to me. The wound has united, the anterior chamber has reformed, the pupil is absolutely clear and black, without any residue of cortex. The next case was a woman aged 52, whose

condition was much the same, and perfect extraction was made the day after the capsulotomy. The last case was a case complicated with glaucoma. It was impossible to say how much loss of vision was due to the glaucoma and how much to the cataract. The extraction was not satisfactory. The day afterward and since the anterior chamber, which was shallow, has been filled with cortical matter. I think this is not an evidence that the operation is not to be adopted; it is simply the result of the diseased condition of the eye in addition to the extraction of the cataract. The point that impressed me was that the capsulotomy does not increase the opacity of the lens in the twenty-four hours.

Dr. G. C. Savage, Nashville, Tenn.: The ideal capsulotomy has been given us by Homer Smith. It is easy to do and he does it right. The crucial incision, the two lines crossing in the center, cannot be improved on by parallel lines running in any sort of direction. These points at the angle of the crucial incision, as has already been demonstrated, roll outward, but the thing that is accomplished by this device of my friend Smith is the ease with which the lens is expelled. I do not believe we ought to leave these patients over night. Do the capsulotomy at 8 o'clock in the morning and then about 2 o'clock in the afternoon you have got all the loosening of the lens that is desirable. I honor my friend Smith for the gift which he has given us and I am sorry his name is Smith, because it is going to lead to a little confusion. We will have to distinguish the two Smiths by Indian Smith and American Smith, and of the two operations given us by these men, give me the American Smith's operation.

Dr. S. Lewis Ziegler, Philadelphia: My attention was first called to this method of incising the capsule preliminary to operation after a paper which I presented at Chicago on a V-shaped capsulotomy and iridotomy. I had letters from various operators saying that they had used this procedure as a preliminary cystotomy, as we chose to call it, before the operation of extraction. I tried a few of these operations with the V-shaped incision, but I was not exactly favorably impressed with it and let it slide by. I think it is a thing we should give a thorough trial, because there are so very many cases in which we must have some method of maturing the lens, and I don't think the Foerster operation is satisfactory. In regard to the term to be used, we are a little confused because we are using

the term capsulotomy in so many different ways. The operation on secondary cataract is called a capsulotomy, and I would suggest that we call this cystotomy; in other words, the capsule is still intact and it is a cyst holding the lens. In that way we would be able to make a slight differentiation between the operations. I think the procedure certainly is worthy of our careful study and practice to see just how much we may develop from it.

Dr. Henry D. Watson, Binghamton, N. Y.: I did the Smith operation on a woman 47 years of age who had been in ill health for six or seven years, with a diagnosis of anemia. Vision in the right eye was counting fingers at 2 meters and in the left eye 20/197. Because of the immaturity of the lenses and fear of an undesirable reaction, I did a preparatory iridectomy with preliminary opening of the capsule. Six weeks later the lens was extracted from the right eye. The capsule was opened at 3 o'clock in the afternoon and at 9 o'clock the following morning the lens was removed, requiring only slight pressure. The pupil was clear and black. In three weeks with an approximate correction the vision was 20/30.

#### **Visual Results After the Smith Intracapsular Cataract Operation.**

D. W. Greene and J. W. Millette, Dayton, O.

*Abst.*—The operation of extracting the lens in its unopened capsule is so ideally perfect in its conception and high visual acuity that it should be the method of choice, all other things being equal. That it is not in general favor is evidence that the profession does not consider that all things are equal as between an extraction in the unopened capsule and one in which the capsule is opened. The statistics of the paper will show that, considering successes in cataract operation solely from the standpoint of high-grade vision, the intracapsular is superior to the capsulotomy operation. If this is a true statement of the condition under which we operate, the operation which furnishes the highest average of visual acuteness, which is the end-aim of every cataract operation, is entitled to our respectful consideration; provided it is evident that the traumatism of the operation is not a special element of danger to the eye, and accidents and complications are not so frequent as to lower the percentage of visual acuteness.

Dr. J. W. Millette, Dayton, O. In our statistics we



have excluded the ruptured capsule cases, because we thought at the time that the rupture of the capsule robbed the operation of its most distinctive feature, and it was no longer an intra-capsular operation. I am now convinced that this is not the fairest way to look at the question. This is one of the complications of the operation, and will come to all men who operated by this method. In the 219 operations here considered there were sixteen ruptured capsules, or 7.3 per cent. This is a complication, just as the retention of cortical matter or prolapse of the iris are complications in the capsulotomy method, and very undesirable complications, such as ruptured capsule in the intracapsular method, a much to be regretted complication. It could not be considered wise to exclude the former from the statistics of the capsulotomy method nor the latter from our statistics. I desire to give the following brief statement of some of the findings, including the ruptured capsule cases. There were sixteen cases not included on account of ruptured capsule. In one, vision was nil; in one other it was perception of light. In fourteen others the vision ranged from 22/100 to 20/15. The average of the sixteen, including the two failures, is 20/37. Of the fourteen, excluding the two failures, it is 20/32. Adding these sixteen to the 193 cases of which we have record, considered in the paper, we have a total of 209, the average vision of which is 20/25 $\frac{1}{4}$ . That raises the average  $\frac{1}{4}$  in the denominator. Adding the fourteen with ruptured capsule to the 182 of the paper, all of whom had vision 22/100 and better, we have a total of 196 with an average vision of 20/23 $\frac{1}{2}$ . We also excluded eight cases with corneal opacities, operated on with the hope only of slight improvement of vision; two amblyopic eyes operated on and not recognized, a condition of which we were informed after the operation. Two cases of undiscovered optic atrophy, and one central chorioiditis were also excluded from the statistics.

Dr. H. G. Sherman, Cleveland, O.: Dr. Greene now no longer stands as a champion of the Smith operation and is only doing seventy-five per cent. of his operations according to the Smith method. Dr. Parker suggested one thought to me. When a man of Dr. Knapp's experience would operate on a series of cases with 97 to 100 per cent. of successful results, why should men attempt in these days to exploit new methods unless they can produce better results? There is

just one thing that the conscientious man should have in mind, and that is, in case of cataract with blindness, to restore the vision by any method that will extract the lens with the least violence to the eye and with the best visual result, and I hold and maintain as the result of a very generous experience that anyone who attempts to operate on cataract according to any definite line is not a successful man and not a conscientious practitioner of medicine, because he loses sight of one material factor—the patient.

Dr. Hiram Woods, Baltimore: I wish to testify to what I saw in Dayton. I saw Dr. Greene operate, at his invitation, and he gave me opportunity to examine a number of cases which he sent for at random, and I believe that the visual results by a careful examination would have been better than I got. Two or three things struck me. One was the increased visual acuity when examined with the black background and the white letters. I recall one man who read with a plain spherical of 11 D., 20/15 with the black card and fell down to 20/20 with the black letters on the white background. Dr. Greene told me that that was a pretty constant observation. Another thing that struck me as compared with my own observations was that in the primary examination in several patients, I could give them greater visual acuity with the spherical without attempting to correct the astigmatism than in my own cases; in other words, contrary to what I expected, there was a greater degree of visual acuity without the correction of the temporary operative astigmatism. A third point I did not get an explanation of. In spite of the acuteness of vision, a number of them had definite small punctate deposits on the hyaloid membrane. What they were from and how common they were I do not know. Dr. Greene said they were quite common. There was no question that in the patients Dr. Greene allowed me to examine the visual acuity was much greater than we are accustomed to get in our primary extractions.

**Eye Complications Caused by Hookworm Disease; With Special Reference to the Formation of Cataracts.**

F. Phinizy Calhoun, Atlanta, Ga.

*Abst.*—The literature on hookworm disease shows that certain eye complications, notably, circulatory disturbances of the retina, optic neuritis, asthenopic symptoms in general, have been known for some years, but changes in the lens have only

recently been recorded. In this paper, histories of three cases of soft cataract in the young, are reported with laboratory examinations, and progress made under treatment. It is the belief of the author that these changes in the lens are due to a toxemia, with or without an accompanying anemia induced by the hookworm.

Dr. Howard F. Hansell, Philadelphia: The only case I ever saw due to hookworm was in an Italian boy, aged 16, whose case was diagnosed as pernicious anemia, and it was only after a thorough examination of all the excretions that the cause of the anemia was suspected. The ocular findings were, as described by Dr. Calhoun—double optic neuritis moderate in degree, edema of the adjacent retinas and numerous hemorrhage scattered throughout the retinas. Vision was seriously compromised. After treatment for hookworm the patient recovered his vision and health. We do not know in full the etiology of cataract and hookworm may be a cause. We can hardly accept the conclusion that the anemia alone is responsible, for many cases of anemia have clear lenses. The toxins generated by the worm may be a responsible factor.

#### **Suggestions Regarding Some Points in the Technic of Cataract Extraction.**

Samuel Theobald, Baltimore.

*Abst.*—The "suggestions" have to do with combined extraction only, as the author has abandoned simple extraction and has felt no inclination to experiment with the Smith operation. The initial incision, made with a rather broad Graefe knife, should be throughout, in the sclerocorneal juncture, ending with a conjunctival flap. The iridectomy, if one would secure a small keyhole-shaped coloboma, can be most satisfactorily made with the author's reverse-curve iris scissors. The capsulotomy: There is no advantage in removing a small piece of the anterior capsule. Instead, a large rent in the capsule is aimed at, and is made with a Graefe cystotome, a long vertical rent, extending beyond the lower margin of the pupil, being crossed by a shorter horizontal one. Delivery of the lens. Too persistent efforts to deliver small remnants of cortical matter, chiefly because of the increased risk or loss of vitreous humor, are reprehensible, especially if the cataract is mature, or the patient advanced in years.

No discussion.

**Measurement of Fatigue of the Ocular Muscles.**

Lucien Howe, Buffalo, N. Y.

*Abst.*—Object and method. Fatigue of muscles measured by the ergograph. The ophthalmic ergograph in general. The convergence ergograph. General considerations: construction; use for laboratory study; clinical use; measurements. Fatigue of abduction. Fatigue of superduction and subduction. Abnormal fatigue of the extra-ocular muscles in normal and abnormal eyes; the accommodation ergograph. Abnormal fatigue of extra- and intra-ocular muscles together. Summary of the data. Conclusions.

Dr. C. H. Williams, Boston, in discussing Dr. Howe's paper, exhibited an appliance consisting of a black tin box about six inches square, fitted inside with lights and wired for attachment to the light current. The box in one side contained a vertical and a horizontal slit, through which the light shines, and with the different colored lights gives results similar to the test with the Maddox rod, and may also be used to measure the effect of fatigue on the six external muscles of each eye in altering the direction of the axes.

Dr. G. C. Savage, Nashville, Tenn.: Is it mind fatigue or brain fatigue, or is it muscle fatigue? It is one or the other or all. If the third brain center, which is the conjugate center, under volition is acting as that instrument is used, it sends impulses to both interni and both eyes will be pulled in. When the eyes look at that candle, the eye that is not behind the prism does not move at all, for the image is on the macula, and the purpose of the movement of the other eye is to keep the macula on the image of the candle. It therefore could not be the third or convergent center. Therefore, it could not be a convergence test. Now, it is not the fifth center, for that is a volition center. It supplies the internus of the left eye and the externus of the right. The left eye will move just as far toward the right as the right eye toward the right. The left eye is perfectly still, as anyone can prove to his own satisfaction by observing another eye. Therefore, it is not the fifth nor the third centers, which are volitional centers. But in the base of the brain there are two centers. These are not under the control of the mind, but under the control of the fusion faculty. The fusion centers at the base of the brain are those which prevent diplopia in all cases of heterophoria. Eight degrees of exophoria means that the third basal centers must furnish to their individual interni fu-

sion power equal to that furnished for eight degrees of abduction, and if one were suddenly made exophoric, the condition would be unbearable, for the muscles of the eye and the brain centers would become quickly fatigued. Sooner or later all heterophoric conditions will bring fatigue and many other associated symptoms. In relieving heterophoria the basal centers are freed from any cause for fatigue, and therefore there is no further danger of muscle fatigue. Volitional centers acting on the eyes are not continued in their action long enough to excite fatigue, but there is no relief for fusion centers until the imbalance of the muscles has been corrected. The chief value of Dr. Howe's paper, when properly interpreted, is in the emphasis it (between the lines) lays on the relief of conditions that cause muscle fatigue.

Dr. Wendell Reber, Philadelphia: How long does it take to apply this instrument to the patient in the office?

Dr. Lucien Howe, Buffalo, N. Y.: About three minutes; that is the average. When it is very long it is five minutes.

I am afraid I have not made myself clear. I said at the outset that it had nothing to do with the question of the visual axes. My friend Williams, who is an expert, I am afraid confused this with the test for orthophoria or heterophoria. It has nothing to do with them; it is simply the question as to how soon binocular vision is fatigued, and the tests which Dr. Williams shows so ingeniously and so excellently is simply a question of a test similar to the Maddox rod. It is most instructive to make tests with the Maddox rod before and then after using this instrument. This is simply a question as to how soon that group of muscles become fatigued. I have nothing to do with the hypothetical and theoretical question of the neuritic battery, but it is a very practical question which the doctor asks as to what degree and how the fatigue occurs. This is an easy method by which these muscles write their own story of fatigue in a few minutes.

#### **The Findings of the Tropometer in 100 Normal Eyes; Its Value in the Study of Strabismus.**

Wendell Reber, Philadelphia.

*Abst.*—Description of various methods of estimating the ocular rotations, all of which finally led up to the invention and use of the tropometer. Work of previous observers, and averages of rotations established by them. Stevens' figures. Own observations on 100 eyes, conforming very closely not only to those



of Stevens, but also to the averaged averages of the older workers. Variations in the normal rotations. Interpretation of the findings with the instrument. Application to the study of strabismus. Significance of the rotations as found in strabismus, and their value as an aid in the final judgment as to what operative procedures should be resorted to. Plea for the use of the instrument in the study of strabismus.

Dr. Francis Valk, New York: I have never found the tropometer to change or tell me what is not true. It invariably confirms all the other examinations. Dr. Reber seems to be very much worried because it does not give exact averages. We say that 20/20 is an average for vision, and yet it is not, for many of you see the vision 20/15 and 20/10 even. If we take Dr. Stevens' records of 33 up and outward, about 55 down and 55 in and 50 out, that is enough. What I look at is simply the relation which these figures bear to each other. What difference does it make if one figure appears to be 49 instead of 50? The point is, where you get these conditions, to find the relation of one to the other; then you know where the muscle balance is. If you will look at Dr. Reber's figures in Case 11, you will find that the rotation of the eye was, right eye 45 in and 50 out, and the left eye was 35 in and 10 out. There is divergence in the right eye and convergence in the left eye. Now, these cases I have seen where they have gone through prisms for the esophoria and have gone through all kinds of glasses. I put the base in on one eye and the base out on the other. Some time ago my friend Park Lewis of Buffalo told me he had some remarkable results in the correction of esophoria by putting on prisms with the base in. I could not understand it. I said, What does it mean? How can we correct esophoria with the base in? And yet with the study of the tropometer I found that he put the prism over the right eye and that corrected it. So you will see the great advantage of the use of this instrument in your practice when you come to correct the motility and refraction. Now, another point referred to by Dr. Reber in reference to measurements. Find out what the condition of heterophoria is, correct it with operation or with prism, and, if with operation, do not try to measure how much you are going to correct. Believe in the fusion force as Dr. Savage does, and that will correct it. Make the muscle balance as near as you can to the correct formula and the fusion force will bring them into correct position. I do not believe the fusion force is ever ab-

sent. Even in amblyopia there is a certain amount of it that will bring the eyes together. One more point. One case of squint comes in and you put on glasses and correct it and the child goes away and has no more squint. Another case comes in that seems to be the same, but nothing will do but an operation. I do not know that anyone has ever explained that. These cases of squint in Dr. Reber's paper have a tendency for one eye to turn out and the other to turn in.

Dr. G. C. Savage, Nashville: Dr. Reber is right in his contention that the inherent strength of a muscle to be operated on should first be known. In heterophorias that can be done in three ways—by the rotary prism, determining the duction power of the muscle; by the perimeter, determining the verting power of the muscle; by the tropometer, also showing the verting power, as set forth in the paper. The duction test is applicable only to heterophoric conditions and should be the one used. In heterophoria the verting test alone is possible, and must be accomplished by the use of either the perimeter or the tropometer. With the perimeter adversion is interfered with by the nose, and supervision is interfered with by the brow. With the tropometer there is no interference with the version test in any direction.

Dr. Savage further discussed operations for the various phorias, etc.

Dr. Wendell Reber, Philadelphia: The point as to heterophoria touched on by Dr. Valk is one of the things that led me to take up the tropometer once more. I was careful to say that in high-grade latent deviations the instrument would be advantageous, but in ordinary cases of imbalance I am still skeptical. I agree absolutely with Dr. Duane about the study of co-ordination or associated movements. I thought I was rather careful to touch upon that. I believe that by combining the study of the associated and co-ordinated movements together with a study of the individual muscles, we will arrive at information about the eyes that we have not heretofore had.

#### **Normal Values of the Accommodation at All Ages: A Statistical Study.**

Alexander Duane, New York.

*Abst.*—This is an attempt to determine the accommodative power at all ages from 8 to 68, and the limits within which this power may vary in normal cases. Some 1,300 subjects have been examined, and after rejecting all cases in which the re-

sults were uncertain, or vitiated by some abnormality of the conditions, there still remained over 1,000 that could be utilized. The results showing the amount of accommodative power and its decline from year to year, are presented both graphically and in the form of a table. The graphic delineation shows that the decline takes place in a curve of quite regular form, differing somewhat from curves obtained in previous investigations. As compared, however, with results presented by the author to the Association three years ago, the changes are comparatively trifling. Moreover, we now seem to have reached the point where the addition of each hundred cases makes no appreciable difference in the results.

Dr. S. D. Risley, Philadelphia: I think we all must have been impressed in our clinical experience with the almost mathematical similarity of the range of accommodation in healthy eyes, emmetropic or carefully corrected eyes for a given age, and Dr. Duane's careful study here have shown us this same observed fact. That is to say, in the laboratory he has shown us the same results which we have gained in our clinical experience, as to the range of accommodation in different ages in emmetropic or carefully corrected eyes. It has interested me personally because it coincides so closely with what I myself learned in my studies of the duration of the paralysis produced by various mydriatics. Before I could establish my facts I had to have some physiologic basis of what the normal accommodation should be at given ages. My method was to determine the limits of the range of accommodation by a series of fine wires or silk threads stretched across an illuminated background for my object. The moment they are out of focus they double very rapidly. It's significance to my mind is that it gives us one of the rudimentary facts from which our clinical experiences must be calculated in so many conditions in the daily routine of our work.

Dr. E. E. Holt, Portland, Me.: It occurred to me while Dr. Risley was speaking of the accuracy of getting at the accommodation of the eye, that it comes in very practically in a good many cases in females. I have been quite a number of times unable to get at their age until I determined the accommodation. I would ask them what country they were born in and after measuring the accommodation, I would say, you were born in such and such a year. They would say, "Why, how do you know?" And I would tell them by examining the eye.

## Dangers to and Requirements of the Eyes of the National Marksman.

John A. Donovan, Butte, Mont.

*Abst.*—The number of qualified marksmen in our army and navy is more than fifteen times that of six years ago. The ranges are from 200 to 1,000 yards; size of bull's-eye in use, 8 to 36 inches, giving visual angle of from 4' to 3.33'. Three theories regarding seeing the sights and target at one time: each has many advocates. Author maintains last theory. 1. The rapid succession of accommodation. 2. Theory of continuous retinal impression. 3. While looking at target, both sights seen with accommodation suspended. Most danger to marksman's eyes from overstrain, effects of lights, and small specks from back-fire. Large lenses fully correcting the ametropia, colored to protect eyes in bright light, should be constantly worn.

Major Paul Stacey Halloran, U. S. A.: I am not in sympathy with the views of Colonel Shaw that it is not necessary to have a clear view of the target. I have talked with many men and they are all of the view that one must have a clear view of the target. Colonel Shaw's experiments were made with experts and almost by intuition they made almost as good scores as if they could see well. Though the target was blurred they used their experience to make good scores with the vision reduced. Therefore, it is not a fair test to bring out the point that it is not necessary to have a perfect view of the target. Focusing on the target I think is essential. This is illustrated in trap shooting. The man does not see his sights, but he does have a clear view of his target.

Dr. Arthur G. Bennett, Buffalo, N. Y.: I have had experience in fitting distinguishing marksmen, because near Buffalo there is a rifle range where the experts go for their competition. My experience with them has been that their shooting falls down about the age of presbyopia. I had a shooting contest with a friend and he beat me. He was myopic to the extent that his best vision was 20/100. He shot without glasses, but he had a good view of the rear sight, which I did not have. His myopia was of the simple form that gave a blurred image of the target, but it was increased in size, and he could estimate it closer than I. With that theory in view I fitted a number of marksmen at Niagara with a focus about a few inches beyond the rear sight and their testimony is

that their shooting has come up to the standard that it was before they obtained the glasses. It does not give them the sharpest view of the rear sight, nor quite such a blurred view of the foresight. The target itself is a blur, but is increased in size and their shooting average has certainly pleased them.

Dr. W. C. Posey, Philadelphia: My views are in full accord of those of Dr. Donovan and Major Halloran. I became interested in the subject when I was a member of the commission appointed by the Surgeon-General of the Army to look into the visual standards for the Army. We were surprised to find how little sight was needed in modern warfare. The enlisted man is not asked very often to aim at the enemy; all the firing done is volley firing. We made a standard of  $26/40$  in one eye and  $27/40$  in the other. Dr. Donovan says the standard is  $20/40$ . The marksman says the main thing is to see the target. In actual warfare we do not want to send marksmen out with their vision limited to three inches beyond the rear sight because they wouldn't see the enemy very often. It might be all right in outdoor shooting at a target. Dr. Donovan says these men desire to find a tinted glass that will modify the amount of light in their eyes. Some have used amber glass. It kills off the mirage effect, which they must study, I believe, the stage and direction of the wind, etc., in long distance shooting. So that the marksmen I have seen have given up the amber glass. Some have used the Eufos glass but have given it up. In field practice these men perspire freely and when they are prone, the perspiration gets on the glass, so that the glass must be set far enough away from the eye to prevent that. Dr. Donovan says it is well to cut off the glass in the lower half. I believe that has certain technical advantages.

Dr. Alexander Duane, New York: I am inclined to agree with those who expressed the opinion that sharp vision is necessary for long range shooting. We do need to see the object aimed at distinctly. My own personal experience is that with vision uncorrected in the sighting eye  $20/40$ , such as I have, I could see well enough at 200 or 300 yards, but when I attempted to qualify at 500 yards as a sharpshooter I could not see the bull's-eye well enough to get my eye on it and I made no success at all as a marksman. I am inclined to agree with the view of Dr. O'Connor who studied the subject carefully, and after consultation with experts in the Army, I believe that really we do need sharp sight in the Army such as



is required in the Navy. In the Navy they require for ordinary seamen 20/20 and for gun pointers 20/15 uncorrected vision.

Dr. S. D. Risley, Philadelphia: Many years ago I had a great deal of experience in using the rifle and was quite expert in its use, and so far as personal experience goes, both in target practice and in shooting at birds, sharp sight for the object aimed at was essential. I am sure I always regarded the target or bird and simply gazing through the sight uncovered the object, getting a clear view of it. Among my friends, who were fond of marksmanship, two were very highly myopic, and always used their glasses, and they stood within the last five in the hundred for marksmanship. One said, "My glasses magnify the object and when I see it I have it down fine."

Dr. John A. Donovan, Butte, Mont.: We cannot tell very much by an individual with myopia. A man who has always been myopic distinguishes because he is used to his condition. A man who is a good shot and can see the bull's eye even though it is blurred, will do better than one with sharp sight who is not a good shot. Most of us are hyperopes, and when presbyopia comes on I am inclined to believe that a good deal of the correction takes the strain from the eye and the individual sees better for a while.

### **Morgagnian Cataract.**

Burton Chance, Philadelphia.

*Abst.*—Morgagnian cataracts not of common occurrence now-a-days, owing perhaps to practice of operation at stage of maturity. But few references in the past ten years. Usually monocular and long standing; may be congenital or secondary to uveal disease; never after traumatism nor operative. The cortex liquefies and the nucleus floats more or less freely in the fluid within the capsule. The nucleus may remain permanently below the pupil so that vision is restored; there may be complete absorption. Author reports two cases with operative procedures and results with general surgical directions; advises that cataracts be not allowed to go on to hypermaturity, because of dangers and complications attending the operation.

Dr. E. B. Heckel, Pittsburgh: I cannot but feel that the existence of this type of cataract is a reflection, more or less, upon modern ophthalmology. Many advise against an operation for uniuocular so-called senile cataract, which is not a necessary concomitant of old age or an evidence of senility,

but the result of some distinct metabolic changes which no doubt, are not limited by the changes in the lens itself, but perhaps only manifest themselves in the loss of transparency of the lens mass, and which may be accelerated if the degenerated lens mass is permitted to remain in the eye. It should be removed as soon as complete, even if the other eye is perfectly negative and has normal vision, not only to prevent a complete degeneration and the formation of a Morgagnian cataract, but also to prevent possible destructive changes to the eye itself by its presence; also to give the patient better vision. My enthusiasm for the extraction of a perfectly formed so-called senile cataract within the capsule is not very great and it is certainly very much less in this particular type, where the physical conditions are so very much altered. It can be done either with or without iridectomy, but should be proceeded with calmly and deliberately. Excess of cocaine should be carefully avoided on account of its tendency to lower the tension of the eye-ball and thus reduce the normal resistance of the tergo of the vitreous, and thereby render the delivery of the nucleus and the proper toilet of the eye more difficult. The use of an anterior chamber syringe is decidedly useful.

Dr. Lucien Howe, Buffalo: Mentioned a proceeding suggested by Noyes, to have the patient lie on his stomach and the nucleus falls forward and may be easily extracted.

Dr. C. A. Clapp, Baltimore: Inquired whether he meant the lens itself was inflamed or what the chemical changes were.

Dr. G. C. Savage, Nashville: Thinks the Smith capsulotomy can be applied in these cases and at once the milky material comes out and then the extraction be proceeded with. Placing the patient in the reclining position and making a small opening in the lower part of the cornea.

Dr. Burton Chance: Thinks we should not wait till the cataract becomes Morgagnian. He believes in operating on the cataract even when the fellow lens is not mature. He recently operated in such a case with good results.

#### Case of Uniocular Polyopia Existing in Both Eyes.

John C. Bossidy, Boston.

*Abst.*—A hysterical girl has polyopia existing in both eyes; she was seen in 1902-4; was again seen this year. The polyopia had disappeared in 1904. She had no cerebral lesion; is now bright mentally. Her history would seem to disprove

Parinaud and De la Tourette that such polyopia was due to irregular contraction of the ciliary muscle. She never menstruated, which may account for the hysteria. No published explanation seems to fit this case.

Dr. A. E. Davis, New York: Monocular diplopia or polyopia not due to some local condition of the eye is rare. Local conditions giving rise to it are, incipient cataract, irregular astigmatism of the lens due to spasm of the ciliary muscle, or irregular astigmatism of the cornea due to corneal opacities; a new-formed macula in cases of long-standing squint. The general conditions are hysteria or organic disease of the brain. Just how the double vision is caused, even when there is organic brain disease, is as yet a matter of theory and speculation. After reading the case reported by Dr. Bossidy and others in the literature, excluding local eye conditions, we are forced to the view that they are due to hysteria in the majority of instances, and in a few to organic disease of the brain.

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Dr. Willis O. Nance, an ophthalmologist of Chicago is, as alderman, taking a prominent place in promoting measures for the public health. At present he is engaged in supporting the Health Department in its fight to secure pure milk for Chicago.

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The Eye, Ear, Nose and Throat Hospital of New Orleans recently received a bequest of \$100,000 from the estate of the late Isaac Delgado.

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The Chicago Ophthalmological Society recently entertained Prof. Anton Elsching of Prague, Austria. Prof. Elsching's visit to Chicago preceded the meeting of the Academy of Ophthalmology and Oto-Laryngology at Niagara Falls, where he was the guest of honor in the eye section and presented a thesis on sympathetic ophthalmia.

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The American Ophthalmological Society will hold its next meeting at Washington, D. C. The following are the newly elected officers of the society: President, Dr. Myles Standish, Boston, Mass.; vice-president, Dr. R. A. Reeve, Toronto, Canada; secretary and treasurer, Dr. William M. Sweet, Philadelphia, Pa.

## EDITORIAL

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### A MEDICAL DEGREE IN OPHTHALMOLOGY.

Although the University of Colorado was not the first teaching body in this country to give a post-graduate course in ophthalmology, yet, we believe it to be the only one that has so far started out with considerable prospects of success. For example, the writer, in conjunction with Dr. Frank Allport and other teachers in the Medical Department of Northwestern University, made a considerable effort to meet the growing demands for thoroughly trained ophthalmologists, but in consequence of lack of support on the part of the faculty, the attempt was abandoned.

We now wish to draw the attention of our readers to some aspects of this subject that seem significant.

In the first place it is possible that the practice of Ophthalmology, like that of dentistry, may come, in America at least, to form a distinct department of surgery. The rise of "optometry" and the popular demand for refraction work as an occupation apart from medicine are but one expression of this tendency of ophthalmic practice. To those of us who regard the science and art of ophthalmology as a small but important branch of surgery, this tendency is to be deplored; we regard it as a retrograde rather than as a progressive step. Yet we must recognize and, if possible, meet the difficulty. And how better than furnishing ample opportunities within professional bounds, for medical men to become well-trained, competent practitioners of the art? If every medical school in the country would furnish, not only to its own graduates but to those of other schools, as good an opportunity for a special education in ophthalmology as is now afforded by the Colorado Medical Faculty, most of our "optometric" troubles would vanish and we would keep within the medical fold a specialty that seems about to stray from it.

It is not alone that the post-graduate course referred to trains one to be something more than a mere "refractionist," but it furnishes in the degree of Doctor of Ophthalmology a sign by which the public—lay and professional—may distinguish the ophthalmic sheep from the optometric goat. Briefly, the requirements (which we give for the benefit of other schools) are:—

One year of post-graduate work in ophthalmology, in-

cluding *daily* service in the eye clinic; a sufficient course of reading; attendance on demonstrations, lectures, quizzes and conferences on the refraction of the eye and its anomalies; the pathology, diagnosis, and treatment of diseases of the eye; ocular injuries and operations.

The clinical work may be done in any ophthalmic hospital or clinic having proper facilities for the study of ophthalmology, with the requisite clinical service.

Summer residence work will include six or seven hours daily for six weeks, in demonstrations, clinics, laboratory work, conferences and lectures.

The last two weeks of the residence course will contain many of the above special lectures and demonstrations of interest to those who have been engaged in ophthalmic practice.

Matriculation fee for all who have not previously matriculated in the University of Colorado School of Medicine, or the Denver-Gross College of Medicine, . . . . . \$10.00

Instruction . . . . . \$30.00

Examination and Diploma . . . . . \$10.00

Short Course . . . . . \$15.00

Students who are graduates of at least one year's standing from a recognized medical school, who show evidence of the necessary study of algebra, geometry, plane trigonometry, and physical optics, and who have taken the full course, including the six weeks' residence work will be eligible to a general examination on scientific and practical ophthalmology. Those successfully passing the examination, and presenting a creditable thesis within six months thereafter, and successfully defending the same, will be eligible for the degree of Doctor of Ophthalmology.

It is not contended that even if medical schools throughout the country were to adopt some such course and it were to be generally patronized, there would be no "refraction specialists" or "ophthalmic-optometrists," in other words, no opticians masquerading as medical men, but we would have discharged the debt that, as the late Dr. Leartus Connor so successfully and persistently pointed out, we owe to the profession and to the public, viz: a provision for the treatment of a very large class of cases now relegated to incompetent, or rather insufficiently informed, opticians. The purely co-commercial aspects of refraction will, doubtless, still be maintained by those who "examine eyes free," but the excuse for it would be



gone and the practice and license of "optometry" would not be in legitimate demand and would have no legal standing. The Doctor of Ophthalmology, fashioned after a year's work from graduates in general medicine, would be a rational and consistent product and would soon put out of court the hybrid optometrist.

It is to be hoped that teachers of ophthalmology in all American medical schools will be stimulated by the marked success of this scheme—now common to the ancient University of Oxford and the new-world University of Colorado—to carry on the teaching of advanced ophthalmology as a regular collegiate course.

C. A. W.

**THE AMERICAN ACADEMY OF OPHTHALMOLOGY  
AND OTO-LARYNGOLOGY.  
SEVENTEENTH ANNUAL MEETING—OPHTHALMIC  
SECTION.**

**PROGRAM.**

Tuesday, August 20, 1912—Reading of Papers, 2:00 P. M.

**President's Address.**

5. **The Phases of Migraine.**

Dr. George F. Suker, Chicago, Ill.

**Oration in Ophthalmology.**

6. **"Sympathetic Ophthalmia."**

Prof. Anton Elsching, Chicago, Ill.

7. **"A Clinical Study of Sympathetic Ophthalmia with Special Reference to the Influence of Foreign Bodies Retained Within the Globe."**

Dr. J. O. Reynolds, Dallas, Tex.

9. **"Goiter as It Concerns the Specialist."**

Martin B. Tinker, Ithaca, N. Y. (By invitation.)

Wednesday Morning, August 21.

**OPHTHALMOLOGIC SECTION 10:00 A. M.**

11. **"Fatalities After Cataract Operation."**

Dr. E. Bernstein, Kalamazoo, Mich.

12. **"Tuberculosis of the Iris."**

Dr. H. McKee, Montreal, Can.

13. **"Tuberculosis as a Cause of Phlyctenular Keratitis and Conjunctivitis with a Report of Cases."**

Dr. A. E. Davis, New York City.

14. **"Some Early Fundus Signs of Arterio Sclerosis."**

Dr. Allen Greenwood, Boston, Mass.

15. **"The Clinical Course of Conjunctival Affections Associated with So-called Trachoma Bodies."**

Dr. Martin Cohen, New York City.

16. **"The Use of a Conjunctival Flap in the Treatment of Corneal Infections, and of Pannus."**

Dr. Elmer G. Starr, Buffalo, N. Y.

Wednesday Afternoon, August 21.

OPHTHALMOLOGIC SECTION, 2:00 P. M.

17. **"Enucleation or Evisceration?"**

Dr. A. G. Bennett, Buffalo, N. Y.

18. **"Supervised and Systematic Study of Ophthalmology."**

Dr. Edward Jackson, Denver, Colo.

19. **"Ocular Symptoms of Accessory Sinus Disease."**

Dr. Percy Fridenberg, New York City.

20. **"An Inquiry Into Results of Established Treatment of Detached Retina and a New Theory."**

Dr. Derrick T. Vail, Cincinnati, Ohio.

21. **"Decompression."**

Dr. E. R. McGuire, Buffalo, N. Y. (By invitation.)

Thursday Morning, August 22.

OPHTHALMOLOGIC SECTION, 10:00 A. M.

22. **"Case of Perithelioma of Eye Lids."**

Dr. R. S. Lamb, Washington, D. C.

23. **"Value of Prisms in Ophthalmic Practice."**

Dr. Wendell Reber, Philadelphia, Pa.

24. **"Characteristic Pose of Body as Influenced by Forms of Adjustments of Eyes."**

Dr. G. T. Stevens, New York City.

25. **"A Case of Sarcoma of the Ciliary Body."**

Dr. C. D. Wescott, Chicago, Ill.

26. **"Melanotic Sarcoma of the Choroid Coat of the Eyeball; Report of Two Cases with Histologic Findings."**

Dr. G. F. Keiper, Lafayette, Ind.

Thursday Afternoon, August 22.

OPHTHALMOLOGIC SECTION, 2:00 P. M.

27. **"An Accessory to the Ophthalmometer Forming a Monocular Corneal Microscope."**

Dr. H. S. Gradle, Chicago, Ill.

28. **"Some Notes on Trephining for Glaucoma."**

Dr. R. A. Reeve, Toronto, Canada.

29. **"Intra-Capsular Extraction of Cataract After the Method of Prof. Stanculceanu, Bucharest."**

Dr. W. Likely Simpson, Memphis, Tenn.

30. **"Conservation of Vision as a National Movement; Its Origin and Purpose."**

Dr. F. Park Lewis, Buffalo, N. Y.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Pol.) (Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Pol.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.) C. H. Francis (Pol.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Illa. Med.) N. E. Remmen (Inf.) N. E. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) H. B. Williams (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) *Oscar Dodd (Inf.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) N. E. Phillips (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) N. A. Young (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) *Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Illa. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 419 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honore Streets.	Pol.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W Harrison and Wood Streets.
E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets Clinics all day.	Illa. Med.: Illinois Medical College, 182 Washington Blvd.	P.-G.: Post Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1418 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

Vol. XXI

CHICAGO, SEPTEMBER, 1912 No. 9, New Series

## ORIGINAL ARTICLES

### SUPERVISED AND SYSTEMATIC STUDY OF OPHTHALMOLOGY.\*

BY EDWARD JACKSON, M. D.,  
DENVER, COLO.

If fitness for ophthalmic practice requires certain knowledge and certain skill, adequate opportunities for getting these through the necessary educational training should be provided. The proper correction of errors of refraction, the application of facts and laws of hygiene in the use of the eyes, and the best assistance when the eyes suffer from trauma, infection or unfavorable systemic influences, are of the highest importance to every person in the community. Every individual in a civilized society at times requires such services. It is reasonable that adequate provision should be made to supply them. The average graduate in medicine and the average practitioner of medicine are not prepared to give these services. The majority of the medical profession frankly acknowledge that they "do not treat diseases of the eye." Still less do they attempt to give that advice and assistance which are even less directly in relation with their ordinary line of work.

The opticians, seeing in the fitting of glasses a large and important field in ophthalmic practice inadequately provided for, have attempted to seize the opportunity for themselves. At first they claimed that the fitting of glasses had nothing to do with the practice of medicine. But their leaders already recognize that optometry has so much to do with medicine, that the fitting of glasses will never be successfully separated from other branches of ocular hygiene, and the treatment of the diseases and injuries of the eye. Their foremost leader, Mr. Prentice, who formulated the striking statement, "A lens

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\*Read before the American Academy of Ophthalmology and Oto-Laryngology, August 21st, 1912.

is not a pill," wrote a few months since: "I now unreservedly state my personal conviction that the public will receive the best service from practitioners who shall have in the future collegiately qualified in both optics and medicine."

Upon the supposition that Mr. Prentice was prepared to turn over the fitting of glasses to those who had received a medical education, this statement aroused quite a storm of objections on the part of the opticians. But when he made it clear that he was desirous of advocating for optometrists whatever additional education in medicine or allied lines would increase their efficiency in their own specialty, the opticians promptly accepted his view.

The ideal toward which the leaders of the American Optical Association are working, and to which they are rapidly bringing the support of their associates, is thus expressed by the secretary of the Optical Society of the State of New York: "The future eye practitioner should be one with a three-year education. Two years of optometry and one year of medicine. Then the college so giving should confer the title of 'Dr.' and the graduate after passing a separate State board examination (an examination as independent of any medical influence as the present dental examinations are), and the said graduates then empowered and entitled to care for the eyes in their entirety."

That is the outline for one scheme for systematic, supervised instruction preparatory to ophthalmic practice. To prepare men "to care for the eyes in their entirety." It is the important rival of the plan that I wish to present.

Let us understand clearly the position of affairs today, even if it does not perfectly conform to the theories of a former generation. The civilized states of America and Western Europe, that have boards of public health, boards of medical examiners, state regents and universities to pass upon the qualification of students, state examinations for dentists, druggists, veterinarians, barbers, stationary engineers, plumbers, etc., will not very long tolerate the unsupervised practice of ophthalmology. The scheme of the opticians is at least a definite proposal to end a situation that has become impossible. It will be adopted unless something better is proposed and pushed forward by those who see its superiority.

I do not mean to say that the present situation seems impossible or intolerable to any one of us, who has built up a



clientele of a few thousand patients, who afford a satisfactory income in return for competent ophthalmic service. But it is intolerable for the millions who suffer from lack of competent ophthalmic service; and who could afford to pay well for such service if they knew its true value, and where and how to obtain it. It is also intolerable for the men of good ability and honest ambition who see the opportunity for highly remunerative service to the community, and find no way provided through which, by a reasonable expenditure of time and effort, they can fit themselves to perform the service in question. Let us remember that customs, laws, institutions, are established not to illustrate the theories of a few, but to meet most economically and efficiently the real needs of the great mass of the people.

Briefly the situation is this: The whole community needs efficient ophthalmic service, comparable with the medical service that it finds available, such as individuals may now obtain from particular members of the medical profession who have, each according to his individual opportunities and ideas, prepared themselves to give such service. But the mass of the community cannot today get such service because there are not enough ophthalmologists, and no adequate provision to supply enough competent ophthalmologists to give it, and no method of helping the people readily to ascertain who is presumably fairly competent to give such service. With this state of affairs there is serious complaint of overcrowding in the general medical profession. What can we do to meet this situation?

The educational training and equipment that ought to be possessed by one who would enter ophthalmic practice includes besides an education in general medicine: (a) Knowledge of the minute anatomy of the eye. Not simply of cell structure and relations, but of small details of topographic surgical anatomy, that are not taught in the anatomical courses of our medical schools. (b) Familiarity with facts in the physiology of vision that are not and cannot be taught to all medical students. (c) A course of laboratory work in the pathology and bacteriology of the eye, such as is not and cannot be given in the courses of bacteriology and pathology in our medical schools. (d) A knowledge of optics, that other practitioners of medicine do not require. (e) Acquaintance with methods of examination that differ radically from those

employed in other branches of medical practice. (f) Skill in a series of most delicate special manipulations and operations.

All these things lie outside of the usual medical course, yet they constitute the essential center of preparation for ophthalmic practice. Should they, as heretofore, be neglected while the student's attention is turned in other directions? Should they be deferred until the student has studied other things, which have for him neither educational nor practical importance?

It is said that a miner must grow up in the mines to acquire the habitual caution upon which his safety, and that of his fellow-workers, depends. It is said that it takes three generations to make a glass-blower. The highest skill in the manipulation of a musical instrument is only reached by those whose practice with it begins in childhood. Is it rational to defer the practice of the delicate operations on the eye, or even familiarity with the instruments to be used in ophthalmic operations until one approaches or reaches middle life?

The old theory was that a man should study medicine and engage in general practice, without thinking of a specialty; and after ten years of writing prescriptions, attending obstetrical cases, and reducing dislocations and cutting off limbs, might properly take up eye work. This is still commended by many who know nothing of educational methods and principles, and almost as little of ophthalmic science and art. It is still praised by some who have followed the plan, very much as the removal of tails was recommended by the fox who had lost his own in a trap. But the time has come when specialization that has actually occurred in medical practice must be recognized in medical education; just as it is now recognized by every intelligent patient who realizes something of the significance of his symptoms and desires to take most practical and immediate measures for relief.

Special skill in a particular department of medical practice is not a matter of individual taste, ability or experience, except as taste and opportunity determine the line of study pursued. The ophthalmologist is made by pursuing a certain line of study, with the help of certain books and teachers, and the utilization of certain clinical opportunities. That a medical man possesses superior skill in a special branch of medicine does not mean that he is of superior mental constitution, or that he has had a unique experience. The specialist does not

belong in a superior class of the profession to be called consultants. His special qualifications mean that his time and effort have been given to a particular field in medicine. And one most important factor that will determine his efficiency in his special field, and also the time and energy he can give for broader culture, will be the excellence of the facilities afforded him for the study of the special branch to which he is devoted.

I do not forget the possible dangers of premature specialization, or of excessive specialization. But nothing will do more to bring about premature and excessive specialization than ignoring the needs for proper specialization in medical teaching. If we do not offer to those expecting to engage in ophthalmic practice the best practical system of training, they will try the second best, or whatever is put before them by those commercially interested in exploiting the demand of the community for ophthalmic service.

My own belief is that the best method of training men and women for ophthalmic practice will begin with the *preliminary education* now required for entrance in the better medical colleges; including sufficient mathematics and physical optics. Then must come a *general medical course*; which should be so remodeled as to eliminate some things that heretofore have occupied a considerable place in the curriculum. Parts of organic chemistry, and materia medica that belong to the highly specialized work of the pharmacist, parts of topographical anatomy that have no general educational value, and can be utilized in practice only by a limited number of surgeons who do particular operations. Parts of obstetrics that can be of no real interest to the medical man who does not attend obstetrical cases, must be cut out of the course required of these students. This will make room for the teaching of the newly discovered facts and processes of general interest; and leave in the four-year medical course a little time for elective studies, that will allow the student to develop in the direction of the life work he intends to pursue.

On such a truly generalized and more elastic medical course should be based the systematic instruction in ophthalmology. This must include first, *laboratory work* in anatomy, physiology and pathology of the eye. Second, *clinical work* in ophthalmology, which may be taken either in a properly conducted public ophthalmic clinic, or as assistant in the private practice of an established ophthalmologist. For the best

training both kinds of clinical work should be included. Of such work we must demand at least one year. It ought to be more. But the demand for one year of properly supervised work, rigidly adhered to, is a great advance over the voluntary six weeks' plan, that has heretofore been given an almost respectable standing in the estimation of the medical profession and the public.

There must be *systematic supervised reading* of the literature of ophthalmology. "Reading medicine" formerly constituted the greater part of a systematic medical course. Reading still occupies a large part of the time of the medical student, although too often it is merely cramming for quizzes or examinations. With the enormous literature of ophthalmology, both past and current, systematic reading is still of great importance; and it is worthy of careful supervision.

Finally the time and effort of the student can be economized by assisting him through *demonstrations, quizzes* or conferences; and, to a moderate extent, by *lectures*.

Now this laboratory work, clinical work, reading and other methods for the study of ophthalmology should be carefully systematized and correlated by standard educational institutions. The school of ophthalmology must be a department in the university. A branch of learning so highly developed cannot be turned over entirely to the proprietary educational institution, whether that be a polyclinic or a correspondence school. A broad and liberal university spirit will endeavor to utilize both the polyclinic and the correspondence method of teaching, in opening to the student every available opportunity for self-development and improvement in his line of work. But the university must keep the supervision of the educational methods and the control of recognition of scientific attainment through proper certificates or degrees.

An attempt to do something of this kind was inaugurated at the University of Oxford three years ago, and in the University of Colorado this summer. It first has to take members of the medical profession already interested in ophthalmology, and self-educated in it, so far as their opportunities have permitted, try to round out and systematize their knowledge of the subject, and then by its own course, supplement the training already obtained elsewhere. For the future there is offered to the medical student a curriculum that will give, along with the general medical education, some special preparation

for the study of ophthalmology, and at the end of his medical undergraduate years lay out for him a course of reading, clinical work and special demonstrations, that will lead most directly towards efficiency in ophthalmic practice. After this has been pursued for a year, or more, the summer course of advanced work can be taken. This is to be followed by examinations as to fitness, which, in the University of Colorado, are clinical, written, and oral.

To the student who successfully passes such examinations and presents an acceptable thesis it is proposed to grant the degree of Doctor of Ophthalmology. This degree will be obtained only after an interval of at least two years from graduation in Medicine. Under existing conditions the student will not be delayed in getting to practical work. But to obtain the special degree he will have to devote a large part of these first years of practical work to systematic supervised study. It is believed that this plan will best meet the needs of the present situation.

By permitting the clinical work to be done in any well-conducted eye clinic, or in the office of any ophthalmic surgeon known to be competent to give instruction in ophthalmology, there are opened up very wide opportunities for the clinical experience necessary to secure efficiency. At the same time the necessity for making use of clinical opportunities, and cultivating habits of scientific study of cases encountered, will be enforced through the examinations held by university authorities.

The schedule of preliminary requirements, especially with regard to mathematics and optics, may seem a little severe to those who have been permitted to pass through their college years without any suggestion of the importance of these studies. But it should be remembered that we must lay out a curriculum that will give the best results in the future, and which may serve as a guide to those now looking forward to taking up this line of work.

The service of the community, the standing of ophthalmologists as a definite class of professional advisers, and their ability to secure the proper recognition even in the ranks of the medical profession, have suffered greatly from the lack of provision for such supervised systematic study. It is for the highest interest of every member of this Society, and it is an important duty which he owes to the general medical pro-



fession and the public, to do all that he can to facilitate and hasten such a reform in ophthalmic teaching. Definite expressions of opinion both professional and public are needed to encourage young men to pursue the better, but longer and more laborious course of study; and to induce universities to offer the needed instruction, supervision of reading and clinical work, and diploma of real and definite significance.

Professional co-operation must go even farther than this. When the student, after one or several years' absence from college, comes back for his final course, he has a right to demand that his time shall be used to the best advantage. Now to occupy six hours or more daily with live, inspiring teaching is not possible with the regular instructors in ophthalmology of any university. At Oxford Mr. Doyne has drawn liberally on the departments of anatomy and physiology, and on the ophthalmic surgeons of London and elsewhere. In Denver, although handicapped by great distance from other medical centers, we were favored by the attractions of climate and the enthusiasm of friends. So that in the summer course in Ophthalmology there were twenty-six who took part as instructors. To such co-operation we may look for great benefit, both to students and to the ophthalmic profession at large. Many men who have done little or no formal teaching, are yet so interested and well-posted in particular subjects, that they are, for those subjects, ideal instructors. Let us realize that in this supervised systematic teaching of ophthalmology we are all very much interested and we can all help.

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## TONOMETRY; WITH DESCRIPTION OF A TONOMETER.

By HARRY S. GRADLE, M. D.,

CHICAGO, ILL.

In 1905 Schiötz put the first practical clinical tonometer upon the market, and its value was immediately recognized abroad. Since then, he has introduced two modifications of the original instrument. The first change was concerned with the working chart alone, for he soon recognized that the intra-ocular pressures as registered by the tonometer were far too high (from 5 to 8 mm. of Hg). The second change was in the footplate of the instrument, to allow for deformed corneal surfaces.

In the last few years, a great deal of work has been done

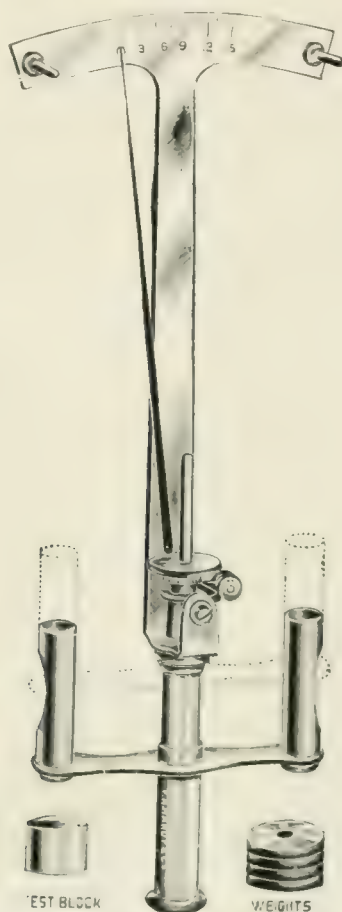
with this instrument clinically and its use has helped to put the treatment of glaucoma upon a firmer basis. However, experimenters have not been content with this disease alone, but have worked out the intraocular pressures in various other conditions. The recognition of the clinical importance of lowered tension in anterior uveitis is due to the use of the tonometer.

The effect of massage upon the normal and upon the glaucomatous eye in regard to the intraocular pressure has been carefully studied tonometrically. The increase or diminution of pressure following the use of various drugs applied locally or used systematically has been worked out in minute detail. For data concerning these details let me refer the reader to the appended bibliography. Nevertheless, the great value of the tonometer lies in the fact that by its use we are enabled to follow the slightest fluctuations in any form or any stage of glaucoma.

Although the Schiötz tonometer is theoretically perfect, still it possesses a few mechanical defects which become apparent upon its daily use. The diameter of the footplate is so large that one cannot judge accurately whether the stylet is resting directly upon the pupillary area of the cornea. The radius of curvature of the base of the footplate is greater than the normal radius of curvature of the anterior surface of the cornea as now accepted. The stylet is so freely movable that it frequently falls out of the instrument of its own accord, chipping the plating and thus causing a rough surface which can easily scratch the cornea. The weights are somewhat awkward to fasten to the stylet and necessitate moving the instrument away from the patient to a solid table. Finally, there is so much play in the moving parts that it is frequently necessary to bend the pointer by hand to set it at zero. This destroys the mathematical relationship between the pointer and the scale.

In order to overcome these mechanical difficulties, the Gradle tonometer was devised. The footplate is 3 millimeters smaller than on the Schiötz instrument, allowing one to see the pupil while using the tonometer and to gauge accurately its position upon the cornea. The radius of curvature of the footplate is 7.6 millimeters, corresponding more nearly to the radius of curvature of the anterior surface of the cornea as measured by Koster and Tscherning, whereas that of the

Schiötz measures 8.4 millimeters. The stylet has a diameter of only 2 millimeters as compared with the 3-millimeter diameter of the Schiötz, thereby bringing the weight more nearly to a mathematical point. The stylet is fixed in the instru-



ment and is not removable. The weights all have the same value, namely, one gram each, and are merely dropped over the stylet, which passes through a hole in the middle of the weight. The stylet and the pointer have a fixed mechanical relationship and but little free play. Hence each instrument, when once set at the zero mark, cannot be altered, and there is therefore no necessity to bend the pointer. The instrument weighs less than the Schiötz and is easier of manipulation.

It can be seen that the underlying principles of the

Schiötz tonometer have not been changed, but that certain mechanical modifications have been instituted in order to allow a handier use of the instrument. As is the case with the Schiötz tonometer, each instrument is carefully tested by the author upon the human eye before it is sent out. The clinical application of the two instruments is identical and the results obtained by innumerable readings have shown themselves to be within a half millimeter of mercury of each other. However, these clinical results must not be mistaken for the absolute manometric pressure, for the factor of the corneal rigidity must be considered. This is, however, so nearly constant that it need not enter into our clinical calculations, and the fact remains that only by the use of the tonometer are we able to judge *accurately* the progress of a case of glaucoma.

The Gradle Tonometer is manufactured by F. A. Hardy & Co.

#### BIBLIOGRAPHY.

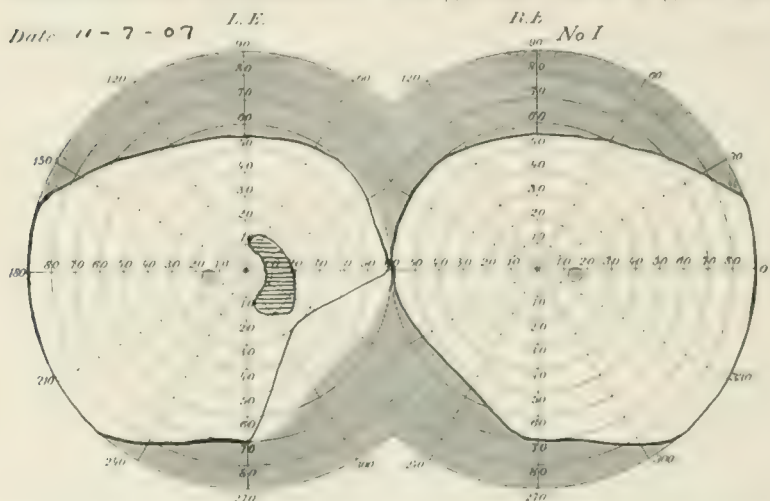
- Schiötz—Tonometrie. *Archiv. f. Augenheilk.* LXII.  
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## HEMIANOPSIA OF LUETIC ORIGIN WITH PARTIAL RECOVERY.

BY WILLIAM EVANS BRUNER, A. M., M. D.

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The following case was of much interest to the writer. Mr. X., age 34, consulted me August 9, 1907. He has never had any trouble with his eyes until the past few days, following an evening at the theater, since when he has some difficulty in reading the numbers in the telephone book. There is no ocular discomfort and no headache. His general health is good, but



he has been under severe nervous strain and has recently undergone an operation, the rebreaking and resetting of his ankle after a fracture with union in bad position.

Examination of the eyes: Vision, O. D. = 6/6, O. S. = 6/9; accommodation, 0.50 pp., O. D. 16 cm., O. S. 17 cm.; muscle balance, lateral orthophoria to exophoria one degree and no hyperphoria. Ophthalmoscopic examination: O. D. media clear, disc round, slight physiologic cup, hyperemic with edges hazy, retina striated, high colored and granular, especially in the macula, entire fundus slightly hazy and irritable looking. O. S., same condition.

August 31: Reading blurs and the patient is very nervous. Fundus presents same appearance in each eye. Form fields are normal. Under homatropin his full correction is as follows:

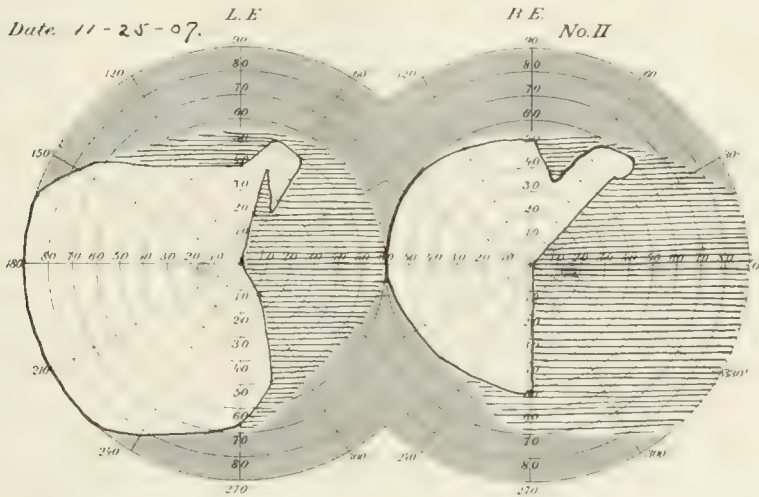
O. D. + .75  $\odot$  - .12 axis 90 V. = 6/6

O. S. + .75  $\odot$  + .12 axis 90 V. = 6/6-1

These were ordered less .25 sphere for reading.



Nov. 7th. The eyes are perfectly comfortable but there is some blurring after reading for a time. Vision, O. D. 6 6-2, O. S. 6 6, O. U. 6 5+. Ophthalmoscopic examination shows the temporal half of the right disc possibly slightly pale, the left more hazy but of good color, and the vessels normal. Examination with the perimeter shows a small scotoma to the nasal side of fixation in the left eye. (See chart 1.) The right eye is normal with no scotoma. Pupils are equal and respond to light. Knee jerks are +. He denies venereal history, smokes moderately. He failed to report again until November



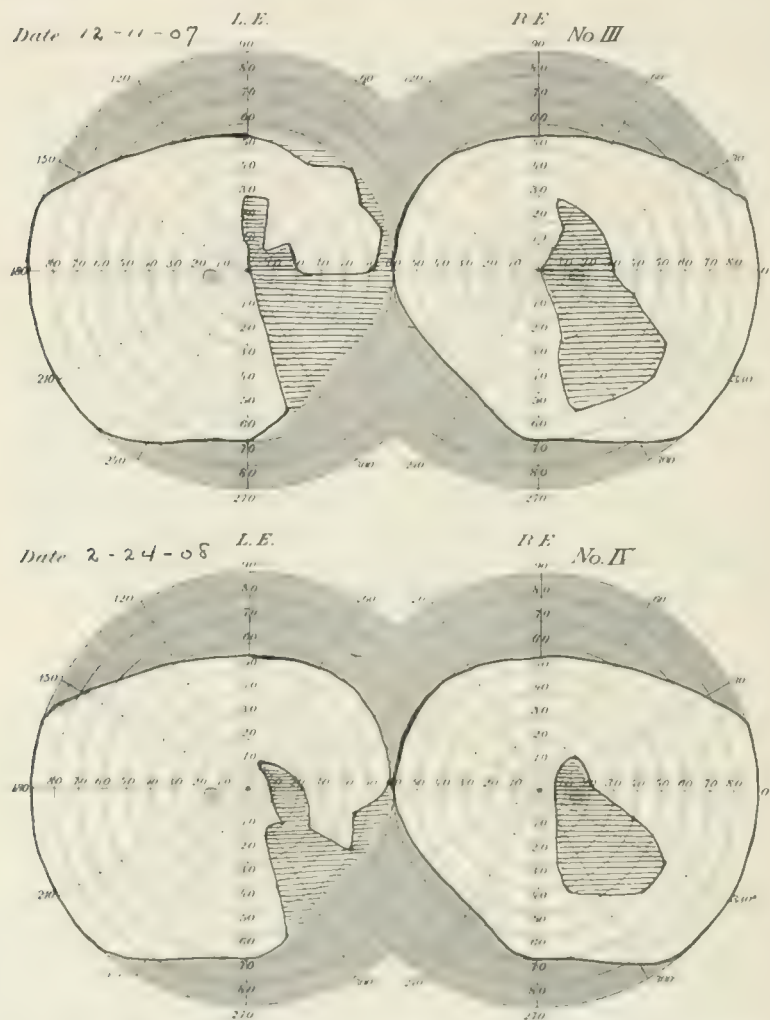
25th. He has been under severe nervous strain on account of the financial panic. The eyes seem better in the morning and worse toward evening. Vision, O. D. 6/6, O. S. 6/6. Ophthalmoscope shows no change. Examination of the fields shows a right sided homonymous hemianopsia (See charts 2). He was referred to D. H. S. Upson for a neurologic examination. The doctor suspected basilar meningitis or cerebral tumor. Patient was put upon iodolbin in increasing dose. Several days later he confessed to me that he had had syphilis six years ago.

Dec. 11th, 1911.—The blur is less and he is feeling better. Vision, O. D. 6/5, O. S. 6/6+. The blind area is smaller in each eye (See charts 3).

Dec. 28th.—The eyes are feeling better and stronger and he is using them hard, contrary to orders. Ophthalmoscopic examination: the fundi are normal except that the nerves are

possibly a little pale in the deeper layers. The fields show further contraction of the blind area. About this time mercury was started and rapidly increased.

Feb. 24, 1908. The fields continue to improve. (See charts 4.)



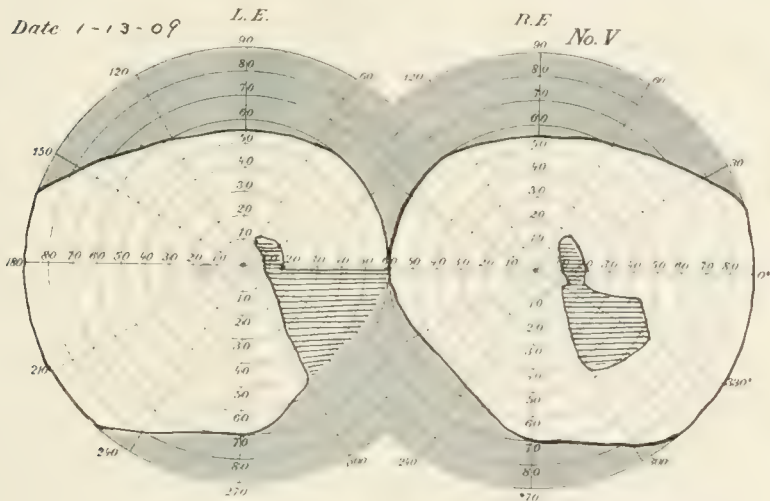
Mar. 14. Scotomas are about the same but do not trouble him so much.

April 30. The eyes seem better and he is feeling finely. The temporal half of each disc is slightly pale. Vision O. D. 6/5, O. S. 6/5.

Jan. 13, 1909. He has been taking mercury most of the

time with occasional intermissions when he takes potassium iodid or idalbin. Vision, O. D. 6/5, O. S. 6/5. Ophthalmoscope shows the central portion of the nerve pale. (See charts 5.) I continued to see him at intervals until Dec. 21st, 1909, when the eyes showed no change. Vision was still 6/5 in each eye and the fields remained the same. He is feeling perfectly well.

July 19, 1910.—There is no change. Vision 6/5 in each, the blind areas the same and the ophthalmoscopic appearance the same. The last time I saw him was April 12th 1912. He



is feeling finely, the eyes give him no trouble whatever and he is working hard. He is still taking mercury at intervals. Seven months ago he had a Wassermann made with negative result and again within a few weeks with the same result. Vision, O. D. 6/5, O. S. 6/5, accommodation 0.50 pp., 17 cm. The outer limits of the form field are normal in each eye and the blind area is practically the same as at the last visit or as the last chart above. The pupils are equal and respond to light. Ophthalmoscopic examination shows the central portion of the right nerve pale but not so the left. The vessels are normal in size and the fundi perfectly normal in other respects. As it is now about 4½ years since the attack of hemianopsia, it is evident that the present scotomas will in every probability remain permanently. There have been absolutely no other indications whatever of any cerebral disease or disturbance of the nervous system.

**PHLYCTENULAR (ECZEMATOUS) CONJUNCTIVITIS AND KERATITIS, WITH SPECIAL REFERENCE TO ETIOLOGY AND THE VALUE OF TUBERCULIN AS A DIAGNOSTIC AGENT: TOGETHER WITH THE REPORT OF FORTY CASES.**

BY A. EDWARD DAVIS, M. D., AND HARRY VAUGAN, M. D.

In reporting the following cases of phlyctenular conjunctivitis and keratitis, with the results of the use of tuberculin as a diagnostic and therapeutic agent in such cases, it has been with the desire to add to the weight of evidence already elicited in this direction, and to aid in a small measure, if possible, in clearing up the etiology of this serious affection of childhood and early puberty. It is only necessary to take even a hurried glance at the literature at hand to find that the etiology of this commonest affection of the eyes of childhood has not been definitely ascertained. While all are agreed that the disease occurs as a rule in those of a scrofulous diathesis or with a tendency to eczema and nasal catarrh, especially when such subjects are weakened by an attack of any of the exanthemata—as measles, scarlatina, etc., there is a wide divergence of opinion as to the specific cause. Some investigators claim that it is of endogenous origin, due to toxins, while others assert that it has an ectogenous cause, and is due to a specific micro-organism. It is interesting, though somewhat confusing, one must admit, to compare and contrast the views of the different writers and investigators on the subject. However, before presenting these conflicting opinions as to the etiology of the disease, we wish to submit a tabulated report of forty cases treated at my clinic at the Post-Graduate Medical School and Hospital last autumn and winter, in which tuberculin was used diagnostically and therapeutically. In presenting these cases we have followed the plan adopted by Dr. Richard J. Tivnen in his valuable paper (1) on this subject, which he read before the Section of Ophthalmology of the A. M. A., in June, 1911. That is, a systematic plan of observation was adopted and included:

- (1) Age of patient.
- (2) Type of Disease.
- (3) Duration of disease, with particular reference to frequency of "recurrences," and association with other diseases.

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(1) Jour. A. M. A. Bd. Vol, Page, 1886, 1911.

- (4) Family history, with particular reference to tuberculosis and syphilis.
- (5) Personal history, with particular reference to tuberculosis and syphilis.
- (6) General condition of patient.
- (7) Lymphoid complications, adenoids, enlarged tonsils, adenitis, etc.
- (8) Results of von Pirquet tests.
- (9) The local, focal and constitutional effects of the test.
- (10) Therapeutic administration of tuberculin.
- (11) The local, focal and constitutional effects of the therapeutis injection.
- (12) Results of the therapeutic injection on the ocular disease.

Forty cases in all were studied and were under observation about eight months approximately. Dr. Vaughan kept special records of these cases, gave the treatment and followed them up.

The Pirquet test was used for diagnostic purposes, and the Tuberculin Bacillen Emulsion ("B. E.") human type, serial dilutions (Mulford) was used for the therapeutic injections—always beginning with the minimum dose and gradually increasing same. The patients ranged in age from seven months to forty-seven years, an average of eleven years (about).

Following the Pirquet test, 28 reacted positively, that is 70 per cent; while 12 did not react, that is 30 per cent were negative.

The temperature was elevated in 19 cases, or 47.50 per cent, and was lowered in 3, 7.50 per cent, and unchanged in 18, 45 per cent. In 14 cases the temperature rose to 99 Fahrenheit or over, 35 per cent.

Focal reaction in the eye occurred in 3 cases, 7.50 per cent.

Following the first therapeutic dose of "B. E." mixture (2 minims of Vial No. 1) in only two cases did the temperature vary more than .2 of a degree from the normal. In one of these cases, No. 21, child, 3 years of age, troubled off and on for six months, the temperature rose to 100 F. The family and personal histories were negative as to tuberculosis, no adenoids or enlarged glands. The Pirquet test was decidedly positive. Ocular reaction was negative.

In the second case, No. 24, child, 2 years of age, off and



on for two months, family and personal histories negative, no adenoids or enlarged glands, the temperature went to 100 F. Ocular reaction was negative.

In 23 cases, or 57.5 per cent, there were either enlarged tonsils or glands, or adenoids—one or all. There was a family tubercular history in seven cases, or 17.50 per cent, while a personal tubercular history was not elicited in a single case, unless the presence of enlarged glands should be so considered.

Two of the cases resembled spring catarrh very closely, and it was only by their clearing up under treatment that made the diagnosis definite.

There was but one negro in the list of patients.

The results of the tuberculin treatment were as indicated in the table: 26 cases, or 65 per cent, were cured; 8 cases, or 20 per cent, were improved; 1 case, or 2.50 per cent, was unimproved; while the results in 5 cases, or 12.50 per cent, were unknown, the patients not returning to the clinic, nor could a nurse sent to follow them up locate them.

The therapeutic injections were given to those cases only which reacted positively to the Pirquet, and after all symptoms as the result of the Pirquet test had passed away.

The only internal treatment given in those who reacted positively to the Pirquet test was the Tuberculin Emulsion, while but little local treatment was given, as boric acid drops, yellow oxide of mercury ointment, and in two severe cases argyrol and atropin were used.

The cases with enlarged tonsils and adenoids were operated upon.

Regulation of the diet was looked after in all cases, and the hygienic surroundings improved, in every case when it was possible.

#### ETIOLOGY.

Were phlyctenular (eczematous) conjunctivitis and keratitis the innocent ocular disease which most of the lay public and not a few physicians consider it, searching out its cause, and, as a result, making more efficient the treatment, in such cases would not be so important matters.

The disease is not only one of the most frequent of eye diseases, but, as Tivnen says, "When there is taken into account the suffering experienced by many such patients, the prolonged invalidism they must undergo, the unheralded acute attacks of frequent occurrence which they must accept, the

inroads on their visual acuity to which frequent attack subjects them, the anxieties of parents as to the outcome of the attacks, the educational loss incident to the patient being compelled to remain out of school, the economic loss both to the child, to the parents and to the state, the physical retardation and interference with physical and mental development—when all these factors, which are not the unusual, but on the contrary, the common concomitants of a phlyctenular affection, are weighed and measured, the consideration of this disease then assumes a more serious aspect than a mere superficial consideration would lead one to expect.” And Fuchs draws a similar picture in the following words: “In persons who have gone through many recurrences of conjunctivitis eczematosa the corneæ often bear quite a number of maculæ as signs of past attacks. Thus the sight is impaired, squint or myopia often develops, and the persons thus affected often become incapable of doing fine work. In addition to this, children, in consequence of the frequently repeated inflammation of the eyes, fall behind in their physical and mental development. Finally a not infrequent outcome is secondary blindness, often occurring many years after the inflammation has passed, and representing the after-results of the corneal scars with inclusion of the iris which remain after the corneal ulcers.”

The importance of clearing up the etiology of so serious and common affection of the eyes is apparent. At the very outset it can be stated that most all, if not all, investigators are agreed, first, that the phlyctenule of eczematous conjunctivitis is not typical of tuberculosis in pathological structure; second, that tubercle bacilli have not been found in it; and, third, that inoculation of its contents into animals does not produce tuberculosis. However, many observers are of the opinion that the phlyctenule is produced by the toxins of tubercle bacilli, or by fragments of the bacilli themselves. (Wolff-Eisner, Derby.)

As far back as 1886 (2) Gifford first made investigations in phlyctenular conjunctivitis and keratitis for bacteria. Out of 28 cases examined he found *staphylococcus pyogenes aureus* and *albus* in 26 instances. (Gifford made cultures from the smears taken from the surface of the conjunctiva and not from the phlyctenules themselves; also in some cases from the pustules surrounding the eye.)

Parsons (3) cites Gifford, also Leber, Morax, Straub, Bach

and others, and remarks, "Most late observers have found staphylococci, which may be accessory, though not casual, but are more likely to be mere contaminations." And further on he cites Baas to the effect that his observations "tend to show that the stimulus to the formation of phlyctenules is endogenous and not ectogenous," and Parsons finally states: "It is possible that the conjunctivitis is due to the action of tubercle toxins."

Weeks (4) states: "The writer has felt justified in including this affection among those that are caused by a specific micro-organism, because of the researches of others, as well as of himself. If an unbroken phlyctenule be carefully rendered aseptic externally and the contents of the phlyctenule conveyed to a tube of nutrient agar, a cultivation of the staphylococcus will invariably be obtained. The same is true of the nodules of eczema. Similar nodules may be produced by introducing the staphylococci beneath the epithelium in suitable subjects."

De Schweinitz (5) states: "It is possible that the active micro-organism is the *staphylococcus pyogenes aureus* or *albus*, which is found beneath the epithelium of the affected conjunctiva, but an endogenous origin of the disease cannot be wholly excluded."

Fox (6) states: "The exciting cause is undoubtedly some micro-organism."

Fuchs (7) states: "Conjunctivitis eczematosa is one of the most frequent eye diseases, and it has its origin in the serofulous diathesis. Adults are attacked by it only in case they have carried the disease along with them from their childhood.

"Sometimes, though rarely in comparison with other cases, the disease is observed in an individual who otherwise is quite healthy, just in the same way that other indications of serofula occur at times as altogether isolated phenomena."

As to the nature of the phlyctenules themselves, Fuchs states:

(1) "The efflorescences when quite recent are sterile, containing neither the ordinary pyogenic germs nor tubercle bacilli. Inoculation from them into a test animal does not lead to tuberculosis. Hence, it can not be assumed that like other

(2) Arch. Oph., XV, 1886

(3) The Pathology of the Eye, Vol. 1, Part 1, Page 77.

inflammations of the conjunctiva they are referable to ectogenous infection, and as little are they to be regarded in the light of true tuberculosis nodules.

(2) "In a great number of patients with conjunctivitis eczematosa there are changes which are certainly tuberculous, most frequently appearing under the form of scrofulous lesions of the glands and bones, and not infrequently also of pulmonary tuberculosis. But even in those patients who otherwise show no clinically demonstrable evidence of scrofula or tuberculosis, the examination with tuberculin (by subcutaneous injection or cutaneous inoculation) proves with rare exceptions the presence of latent tuberculosis. If, then the efflorescences are not actual tuberculosis nodules, and yet, on the other hand, they occur with such preponderating frequency in tuberculous men, we should not be far out in explaining them as being due to the action of toxic substances, in the same way as, for example, nodules develop in tuberculous individuals after the rubbing of a tuberculin ointment into the skin (Moro). In harmony with such a connection is the observation that after the inoculation of tuberculin in children whose eyes were hitherto healthy the efflorescences sometimes appear on the conjunctiva after an incubation period of about fourteen days. Should subsequent investigations confirm the tuberculotoxic origin of the efflorescences and of eczema, too, the term conjunctivitis eczematous would then be really justified."

Ramsay (8) states: "The very essence of the ailment lies in the malassimilation of food, and that most, if not all, cases arise as the result of improper dieting."

Theobald (9) states: "That in these cases we have to do with a relative benign form of septicemia (intestinal intoxication), due in all probability to the entrance into the circulation of bacteria or their toxins from the alimentary canal, is a view which I have long held."

Derby, while admitting with all other observers that the phlyctenule is not typical of tuberculosis in pathological structure, that tubercle bacilli have not been found in it, and that inoculation into animals does not produce tuberculosis (al-

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(4) Diseases of the Eye, 1910, Page 244.

(5) "Diseases of the Eye." 1910, Page 275.

(6) A Practical Treatise on Ophthalmology, 1910, Page 153.

(7) Fuchs' Text Book of Ophthalmology, Duane, Fourth Edition, Page 182.

though he cites Müller having infected one animal out of twenty by inoculating them with contents of phlyctenules), adheres to the theory of Wolff-Eisner. (10). "This states that the question is purely one of dosage, that where only a small quantity of tubercular material is deposited then the pathological changes will not be characteristic and tubercle formation will not take place. The first change in a tissue produced by tubercular material may be simply the gathering of lymphoid cells. Unless a greater degree of infection takes place, it seems plausible that epithelioid cells, giant cells, and caseation may all be lacking. Thus we may get tuberculosis without tubercle formation."

Stephenson (11) sums up the matter as follows: "While nobody asserts that the phlyctenule itself is of tuberculous histologic structure, or that it contains tubercle bacilli, nevertheless it is most ordinarily believed that practically speaking the characteristic lesion occurs only in those who are subjects of tuberculosis, latent or otherwise."

The opinions of Stock, Morax and a great many others might be cited here, but we shall not take further space or time, except to quote Dr. H. D. Bruns of New Orleans, who has recently reviewed the subject, (12) and has advanced a new theory as to the cause of phlyctenular conjunctivitis. He states: "It seems to me, then, more logical in the present state of our knowledge, to regard phlyctenular ophthalmia, not as the effect of a specific toxin (tuberculous) or as an ocular eczema, but rather as a neuropathic phenomenon brought about by an auto-intoxication, originating in the great majority of cases, as the effect of treatment clearly shows, in derangement of the gastro-intestinal functions; not all persons being equally liable to these morbid processes, but much more particularly those in whom we recognize clinically the serofulous, lymphatic or exudative diathesis: such persons being especially liable to tuberculous and to other infectious diseases, which in their turn further depress the metabolic and catabolic processes, the functions of digestion, assimilation, secretion and excretion, and thus intensify and perpetuate the state of auto-intoxication."

We can find but one author who seems to have advanced

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(8) Diathesis and Ocular Diseases, 1909, Page 22.

(9) Prevalent Diseases of the Eye, 1906, Page 188.

(10) Derby Arch., Oph. Bu., Vol. 37, 1908, Page 524.

(11) British Med. Jour., April 16, 1910.



the same theory to account for some of these cases of phlyctenular conjunctivitis. Swan M. Burnett (13) states: "There is another quite distinct class of conjunctivitis which are to be regarded as expressions of dyscrasiæ, and though they may and probably do require a special germ for their causation, yet the condition of the general system and the state of nutrition are important if not prime factors."

"It would seem probable, too, that *in some instances at least the vesicles are the manifestations of a derangement at the nerve centers analagous to, if not identical with, that causing herpes oster.*" (Italics ours.)

Bruns reports 451 cases, 102 of which he employed the Pirquet test on, and 60.7 per cent were positive. Dr. Bruns is strongly opposed to the tubercular theory of phlyctenular conjunctivitis, and he says, "I believe it fair to say that the case for the tuberculous cause of phlyctenular ophthalmia rests mainly on the evidence of the von Pirquet test, to which from 80 to 90 per cent of those with phlyctenulæ respond.

"When, therefore, the test is applied to children—the children of the free clinics—with phlyctenular affections, and by those favorably inclined to the theory of tuberculous etiology, and we find always an irreducible minimum of from 12 to 10 per cent of negative reactions, by what logic can we be justified in disregarding these ten cases in a hundred and in declaring, in spite of them, that tuberculosis is a true cause of phlyctenular ophthalmia—a cause, that is to say, which invariably precedes the effect in question?"

In closing the discussion on this paper, Dr. Bruns maintained that unless the adherents of the tubercular theory could prove that this 10 to 12 per cent—the irreducible minimum—was due to tuberculosis, the whole theory failed—just as the law of gravitation would fail if 10 to 12 per cent of objects fell upwards instead of downwards. In this illustration, the doctor I think is somewhat radical. For instance, we are all agreed that most cases of parenchymatous keratitis are due to syphilis, the exciting organism being the spirochaeta pallidum. Yet, because all cases can not be shown to be due to syphilis, we would be entirely unjustified in saying none were due to it.

From the different views presented above, it will be seen

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(12) Paper read in Section on Oph. of A. M. A., June, 1912.

(13) System of Diseases of the Eye, Norris & Oliver, Vol. 111, Pages 199-200.

that there is lack of unanimity of opinion as to the cause of phlyctenular (eczematous) conjunctivitis. All observers are agreed that, in the vast majority of cases, there is an underlying dyscrasia (scrofula), accompanied most of the time by an eczema and a nasal catarrh. If, in addition to this, we take into consideration: first, that the disease affects, as a rule, only the poorly nourished and those in unhygienic surroundings; second, its tendency to recurrence and its chronicity; third, that it is a *focal* affection of the conjunctiva, a point to which Fuchs has called attention; fourth, its glandular complications; fifth, its response to the use of tuberculin, and to the fact that following the instillation of tuberculin into the eyes whole crops of phlyctenules have been produced, and even a typical phlyctenular keratitis; sixth, and finally, its response to the diagnostic and therapeutic action of tuberculin—all lead us to believe that tuberculosis is the underlying cause in every case, and that the “characteristic lesion (phlyctenule) occurs only in those who are subjects of tuberculosis, latent or otherwise.” Or, as the Germans would have it, in those who are “candidates for tuberculosis.” These “candidates for tuberculosis” are those cases in which the lymphocytes are increased while the multinuclear leucocytes are diminished, and the protective properties of the blood, which render bacteria more easily absorbed by the phagocytes, are diminished, so that such children are easily infected; especially if they are weakened still further by an attack of any of the exanthemata.

Whether the phlyctenule itself, which may be considered a “pseudo-tuberle,” is due to tubercle bacilli, or to the toxins of this bacillus, or to other cause, is yet to be determined. In the meantime, judging from our own limited use of tuberculin in these cases, it is our opinion that tuberculin should be used in every case, both as a diagnostic and as a therapeutic measure, as a specific, if you please, and the general hygienic and dietetic measures should be carried out, of course, just as in any other disease in which the system is in a run-down condition.

## RESULTS OF THE USE OF TUBERCULIN (DIAGNOSTIC AND THERAPEUTIC) IN OCULAR DISEASE.

Case No.	Age of Patient — Years.	Type of Ocular Disease	Duration of Disease	Glandular Complications	Tub. Family History	Personal Hist. Active Syphilis	Von Pirquet Positive—Negative	Ocular Reaction to V. Pirquet Test	Temp. with Treatment	Therapeutic Duration of Treatment	Result on Ocular Disease
(1)	10	Phlyct. Keratitis.	1 month	Ad. T. Gl.	Negative	Negative	Negative	Negative	98.5	Oct. 14	Cured
(2)	13	Phlyct. Keratitis.	Off and on for 2 yrs.	Gl.	Negative	Negative	Positive (strong)	Negative	98.5	Dec. 5	Cured
(3)	1	Phlyct. Conjunct.	1 week	T. Gl.	Negative	Negative	Negative	Negative	99.2	Dec. 2	Unknown
(4)	11	Phlyct. Keratitis.	Off and on for 8 yrs.	T. Gl.	Negative	Negative	Positive	Negative	100.3	Dec. 2	Improved
(5)	23	Phlyct. Keratitis.	Off and on for 6 yrs.	T. Gl.	Negative	Negative	Positive	Negative	98.8	Nov. 15	Improved
(6)	12	Phlyct. Keratitis.	8 mos.	Gl.	Negative	Negative	Negative	Negative	100	Nov. 18	Unknown
(7)	13	Phlyct. Keratitis.	1 week	Gl.	Negative	Negative	Negative	Negative	98	Nov. 18	Cured
(8)	5	Phlyct. Keratitis.	Off and on for 3 yrs.	Gl.	Negative	Negative	Positive	Negative	98	Nov. 28	Improved
(9)	3	Phlyct. Keratitis.	Off and on for 5 mos.	Ad. T. Gl.	Negative	Negative	Positive	Negative	99.2	Nov. 28	Cured
(10)	8	Phlyct. Keratitis.	2 weeks	Ad. T. Gl.	Negative	Negative	Positive	Negative	98.5	Jan. 3	Improved
(11)	1	Phlyct. Keratitis.	Off and on for 8 mos.	Ad. T.	Negative	Negative	Positive	Negative	98.5	Jan. 3	Unknown
(12)	3	Phlyct. Conjunct.	Off and on for 3 yrs.	Ad. T.	Negative	Negative	Positive	Negative	99	Jan. 20	Cured
(13)	4	Phlyct. Conjunct.	Off and on for 8 mos.	Negative	Negative	Negative	Positive	Negative	98.5	Jan. 24	Cured
(14)	5	Phlyct. Conjunct.	Off and on for 3 yrs.	Ad. T.	Negative	Negative	Positive	Negative	98.4	Jan. 24	Cured
(15)	6	Phlyct. Conjunct.	2 months	Negative	Negative	Negative	Positive	Negative	98.4	Jan. 24	Unknown
(16)	28	Phlyct. Conjunct.	2 months	Negative	Negative	Negative	Positive	Negative	98.4	Jan. 24	Unknown
(17)	8	Dactylo-Cystitis and Phlyct. Keratitis.	Off and on for 1 yr.	Ad. T.	Negative	Negative	Positive	Negative	100	March 18	Improved
(18)	1	Phlyct. Keratitis.	1 month	Ad. T.	Negative	Negative	Positive	Negative	98.8	March 18	Improved
(19)	4	Phlyct. Conjunct.	Off and on for 1 yr.	Ad. T.	Negative	Negative	Positive	Negative	102	June 19	Cured
(20)	1	Phlyct. Keratitis.	Off and on for 1 yr.	Ad. T.	Negative	Negative	Positive	Negative	99.6	May 1	Unknown
(21)	3	Phlyct. Conjunct.	Off and on for 6 mos.	Negative	Negative	Negative	Positive	Negative	99.6	May 1	Improved
(22)	4	Phlyct. Conjunct.	5 months	Gl.	Negative	Negative	Positive	Negative	100	May 12	Cured
(23)	24	Phlyct. Conjunct.	1 month	Negative	Negative	Negative	Positive	Negative	100	May 12	Cured
(24)	2	Phlyct. Conjunct.	Off and on for 2 mos.	Negative	Negative	Negative	Positive	Negative	99.2	May 22	Cured
(25)	19	Phlyct. Conjunct.	Off and on for 5 yrs.	Gl.	Negative	Negative	Positive	Negative	99.2	May 22	Cured
(26)	20	Phlyct. Conjunct.	2 months	Negative	Negative	Negative	Positive	Negative	99.4	May 22	Cured
(27)	2	Phlyct. Conjunct.	Off and on for 5 mos.	Negative	Negative	Negative	Positive	Negative	100	May 22	Cured
(28)	9	Phlyct. Conjunct.	Off and on for 2 yrs.	Ad. T.	Negative	Negative	Positive	Negative	100	May 22	Cured
(29)	1	Phlyct. Conjunct.	Off and on for 2 mos.	Negative	Negative	Negative	Positive	Negative	98.5	May 22	Cured
(30)	1	Phlyct. Keratitis.	1 month (Pneumonia)	Ad. T.	Negative	Negative	Positive	Negative	98.5	May 22	Cured
(31)	10	Phlyct. Conjunct.	Off and on for 3 yrs.	Negative	Negative	Negative	Positive	Negative	98.5	May 22	Cured
(32)	11	Phlyct. Conjunct.	Off and on for 2 mos.	Gl.	Negative	Negative	Positive	Negative	97.8	June 19	Cured
(33)	7	Phlyct. Conjunct.	2 months	Ad. T. Gl.	Negative	Negative	Positive	Negative	98.5	June 18	Cured
(34)	1	Phlyct. Conjunct.	Off and on for 6 mos.	Negative	Negative	Negative	Positive	Negative	99.5	June 29	Cured
(35)	5	Phlyct. Conjunct.	Off and on for 3 yrs.	Ad. T.	Negative	Negative	Positive	Negative	98.5	July 6	Improved
(36)	11	Phlyct. Conjunct.	Off and on for 3 mos.	Ad. T.	Negative	Negative	Positive	Negative	98.5	June 29	Cured
(37)	22	Phlyct. Keratitis.	Off and on for 5 mos.	Ad. T.	Negative	Negative	Positive	Negative	102	June 28	Cured
(38)	47	Phlyct. Keratitis.	Off and on for 3 yrs.	Negative	Negative	Negative	Positive	Negative	98.8	Sep. 12, '11	Cured
(39)	38	Phlyct. Keratitis.	Off and on for 6 yrs.	Negative	Negative	Negative	Positive	Negative	98.8	Sep. 12, '11	Cured
(40)	30	Phlyct. Keratitis.	Off and on for 20 yrs.	Negative	Negative	Negative	Positive	Negative	98.9	Nov. 7, '11	Improved
(41)	27	Phlyct. Keratitis.	Off and on since child	Negative	Negative	Negative	Positive	Negative	98.8	May 25, '12	Cured

NOTES: "Ad.," "T.," and "Gl." are abbreviations for Adenoids, Tonsils and Glandular Enlargements.

The term "off and on" is used to mean that there has been more than one attack of the phlyctenular disease.

"Therapeutic Duration of Treatment": The time of the beginning of the treatment is given only, but the approximate time of treatment of all cases varied from a few weeks to eight months.

## REPORT OF SOCIETIES.

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### AMERICAN OPHTHALMOLOGICAL SOCIETY.

The Forty-Eighth Annual Meeting of the Society was held at the Hotel Chelsea, Atlantic City, N. J., on Wednesday and Thursday, June 12 and 13, 1912.

Dr. Edward Jackson, Denver, Colorado, President, in the chair.

#### **Management of the Capsule in Cataract Extraction and Afterward.**

This paper was read by Dr. Edward Jackson: In extraction of cataract linear division of the capsule at the upper margin of the pupil avoids the inflammatory complications liable to arise from incarceration of the capsule, or the presence of cortex in the anterior chamber; and gives as good visual results as are obtained from the primary operation by any other means of opening or removing a part of the anterior capsule. Capsular after-ataract sufficient to justify division of the pupillary membrane arises in 50% of cases so operated upon. Division of the pupillary membrane is a safe, efficient operation, causing little pain or inconvenience, if done with a knife-needle of the Hays-Ziegler type, entered through the vascular tissue of the limbus, and made to cut by a to and fro movement; to make two incisions in the capsule that entirely join each other at an angle. This method of treating the capsule in connection with cataract extraction, seems to be easier, safer and more certain to give a useful eye than any other method now in general use for senile cataract.

#### **The Relative Value of Recent Improvements in Cataract Extractions.**

Dr. Robert Sattler, Cincinnati, O.: No method of cataract extraction has undergone a more progressive advance than linear extraction, which for so long has been and still continues to be the almost universal practice because of the safer and easier technical execution of its opening incision, iridectomy, capsule cutting and lens expression, in spite of the commonly admitted inefficiency of its lens delivery. Of the newer methods, that of Smith provides a safe and successful lens delivery in its unbroken capsule. The claims in favor of the Smith method are its bloodless opening incision, its smaller iridectomy with lesser amount of hemorrhage and its joint removal of lens and capsule with permanent and complete clearance of the pu-



pillary area. The objections to the Smith method are that the corneal wound cannot be accurately estimated, and, if it is necessary to enlarge it, this has to be done by approaching the upper margin of the cornea and thus the advantages of the incision are lost; there is also produced in many cases a high astigmatism. I have long adopted different standards for my patients as regards vision after operation. For those of intellectual inferiority a restoration of useful vision which approaches or exceeds 0.5 is regarded as sufficient for their needs and I emphatically discourage subsequent surgery. For mechanics and professional persons whose ambition is to resume their wonted occupations a higher standard is upheld, but even for the latter classes, if restoration of vision equal to or exceeding 0.7 is brought about, on general principles of safety, further surgery is discouraged. Until this is achieved, every possible safe means is employed and for these cases the most careful purposive selection for lens delivery is practiced and in particular the important advantage of intra-capsular removal whenever it is expedient and justifiable.

The above two papers were discussed jointly.

*DISCUSSION.* Dr. S. Lewis Ziegler, Philadelphia: As to the visual results after cataract operation, I think that the visual results are relative and I think they depend a great deal, not upon the operator, but upon the refractor. You may have a beautiful operation, but your assistants may not succeed in getting a good result, where if you sit down and do careful refraction you will probably find that you have a perfectly normal vision.

Dr. C. H. Beard, Chicago, Ill.: As I understand Dr. Jackson's linear cystotomy it is in effect the same as Knapp's peripheral cystotomy. In most of our cases of extraction we do not have at any time a large pupil, and if I am not mistaken, to make a cystotomy through an ordinary pupil with a cataract knife would of necessity limit the extent of the incision considerably. Dr. Jackson's cystotomy must be within the limits of the pupil. In reference to making multiple incisions in the capsule I think that if we were to be able to see our incision many of us would be surprised to see the result of these so-called geometrical figures in the capsule. I believe there is a good deal of moonshine about it. When you have made the Knapp peripheral incision, you at once see the lens pop up, and, when it pops forward, it tears the capsule in different directions and



when once it pops up from partial incisions our ability to make incisions to come across it at different points is rather problematical. Also, in regard to the after cataract, I think the single incision there is all that is necessary. My preference for the knife for this secondary operation is really a diminished form of Graefe knife. I have for a long time used for this purpose the worn-out Graefe knives, which to be properly formed should be one continuous wedge-shape.

Dr. W. Gordon M. Byers, Montreal, Canada: I should like to emphasize again very strongly what I said two years ago before this meeting that altogether apart from the practical advantages of the peripheral needling, the benefits of which are readily appreciated by any one who follows it, no other method of needling is justifiable. The frequent presence of pyogenic organisms in the conjunctival sac has been so well established and the much greater rapidity of healing following a conjunctival wound than in one through the cornea is so well known that I feel that a man who does an incision through the cornea is practicing very bad surgery and doing something that is very wrong and unfair to his patient and I should like to say, too, that any operation which involves a wound through the cornea, in view of our present bacteriological knowledge has to show some tremendous advantages to make it take the place of one which includes a proper conjunctival flap. I think these points have been altogether lost sight of.

Dr. Percy Fridenberg, New York City: I believe the Smith method has a field of usefulness in selected cases. I think that the fact that it rapidly matures a partial cataract is one great point in its favor, especially in those cases where there is involvement of both lenses. Those who have seen the operation done with very superficial and wide separation of the capsule without stirring up the lens matter itself and by using the excellent knife devised by Smith which cuts without tearing and does not require to be plunged deep into the lens and has its shank adjusted in such a way that it will nicely stop up the wound and does not allow the aqueous to escape, will be gratified by its rapidity.

Dr. R. L. Randolph, Baltimore, Md.: I was very glad to hear the point brought out by Dr. Jackson as to the point in the cornea in which one must make the incision. I thought that this habit of making the entrance of the anterior chamber out into clear cornea had disappeared, but had occasion to visit

a hospital a year or two ago and I was shown two cases operated upon by different members of the hospital staff and within ten days or two weeks in each case there was a little gray area around the point of entrance.

Dr. S. D. Risley, Philadelphia: To make these incisions and operations on paper and to make them in the cataract eyes is quite a different proposition. In the first place in making an incision through the capsule and endeavoring to join it with another cannot always be successfully done. The simpler things we can do the better and the less injury we make to the eye.

Dr. R. A. Reeve, Toronto, Canada: I believe that now, as always, no one operation is suitable for all cases and though I admit the great advantage of Dr. Ziegler's needle and his methods and that spoken of by Dr. Jackson, I still think that in a small percentage of cases the original Bowman double needle operation for capsular cataract is the best. It is indicated in cases where the tissues are so thickened by proliferation of the endothelial layer and matting of the tissues that a knife point, however sharp, will not go through the membrane without traction on the ciliary process, the very point of danger that we all agree is to be avoided.

Dr. Peter A. Callan, New York City: We have all our own methods and I advise those who have a good method to stick to it. In regard to secondary cataracts, I feel very strongly on the subject. If we take a piece of gold beater's skin and put it on a drum and then try to make a V-shaped incision such as recommended, the first is a cut, but the second is more or less of a drag. Unquestionably the tension is taken off and the result is the tearing which we all should avoid. There is no method so safe and so sure of giving you an opening and a permanent opening than a De Wecker scissors or some similar scissors. You cut every time without any traction.

Dr. Samuel Theobald, Baltimore, Md.: We were all brought up many years ago with the belief impressed upon us that traction upon the ciliary body was the cause of many of these post-operative complications after the use of the needle-knife. It seems to me since the Major Smith operation has been introduced that it is very evident that there was more fear on that point than necessary, for nothing could be more severe or magnified than traction on the ciliary body in dislocating the lens in the Major Smith operation.

### The Combined Operation of Sclerectomy and Iridectomy in Chronic Glaucoma (The LaGrange Operation).

Dr. E. Gruening, New York City: In my experience, if this operation, as first described by La Grange, is properly performed with a well applied conjunctival flap, the wound closes in a short time, the anterior chamber is restored and the intraocular tension is more permanently reduced by filtration in the combined operation than in the simple iridectomy. In the past two years I have performed this operation twenty-one times on patients ranging from 23 to 82 years of age and with intraocular tension varying from 35 to 55 mm. mercury. The tension was permanently reduced in each case with decided improvement of vision in the majority. In most of the cases general anesthesia was used.

*DISCUSSION.* Dr. Robert Sattler, Cincinnati, O.: We are certainly indebted to Dr. Gruening for sounding this note of warning in connection with this operation, which is certainly not an easy operation. I saw it performed by one operator and was impressed. It was necessary in this case to resort to double fixation before the little bit of sclera could be excised. I personally have not had cases, although I have been on the lookout, in which the operation might be indicated. It is certainly a point of great interest to all of us to be warned as Dr. Gruening has warned of the possibilities that attend the making of such a large section.

Dr. R. A. Reeve, Toronto, Canada: There is an operation which in my experience is as simple or indeed simpler, that is trephining, the modification by Elliot of Madras, where you dissect off the conjunctival flap. I presume all are familiar with it. Dissect this off very carefully, going down to the sclera because in Elliot's operation you dissect right into the limbus. It does not correspond to Tree and Fry's operation. It aims at opening the peripheral part of the anterior chamber so that part of it is in the cornea. In some cases I have done it a number of times; passing in fine forceps you can succeed in making a buttonhole, taking out a piece of iris when the effect of the operation is doubtless increased. Then you replace the flaps. You do not require sutures. You do not require a general anaesthetic. You do not disturb the intraocular structures as in La Grange's operation as he does it and in my experience there is very little reaction.

Dr. S. Lewis Ziegler, Philadelphia: I think that this point

that Dr. Gruening has brought up in regard to the size of the incision is probably very important because the illustrations of La Grange are beyond reason. The advantage, it seems to me, which we prefer to gain from La Grange is firmness of cicatrix, but the disadvantage of the marked filtering cicatrix is a slight elevation under the lid. The more successful you are with the operation the more pronounced you have this slight elevation. So far as the comparison is concerned I do not think that the La Grange operation is so difficult to perform. I think that the Elliot is a slightly more dangerous operation because of trephining. I think I prefer the Herbert operation in which you make your incisions on both sides of the sclera back from the wound.

Dr. W. E. Lambert, New York City: I found this operation described by Dr. Gruening very satisfactory. I have used instead of scissors a Stevenson punch.

Dr. J. Herbert Claiborne, New York, read a paper entitled **A Piece of Glass in the Crystalline Lens, with Description of the Eye Three Years and a Half After the Accident.**

In November, 1908, the right eye of a boy of 16 was injured by the explosion of a glass vial. A cut 4 mm. long was found in the cornea 3 mm. from the scleral margin. There was no iridodialysis though there was prolapse of the iris from the wound; this prolapsed portion was excised. Two days later the blood had cleared away enough so that I could determine that the lens was not dislocated, but it showed a dark smudge in the vitreous behind the lens. The wound healed in five weeks when an X-ray picture was taken which showed to the rear and inner side of the lens a foreign body about 4 mm. long. After eleven months the patient was allowed to return to school and has been using his eyes constantly since without discomfort. The vision with correction is 20/30. There are several small points of opacity which seem to indicate the slow formation of cataract.

**DISCUSSION.** Dr. Samuel Theobald, Baltimore, Md. A case somewhat similar to this occurred in my practice about forty years ago. The young man was making a chemical experiment with a test-tube. The tube exploded and a little spicule of glass passed into the anterior chamber and when he got to my office it was hanging by a bit of membrane from the upper margin of the pupil. While he was in the office it dropped out of sight. There was, as might be supposed, a sensory re-

action: the eye became red and sensitive to light, but after a short time the inflammation subsided. Of course, it became encysted and was sterile. From that day to this he has been none the worse for the glass in the ciliary body. He does not know the difference between the two eyes. I saw him not many months ago.

Dr. W. E. Lambert, New York City: I had an opportunity of seeing this case that Dr. Claiborne has reported before the X-ray was taken. Although it was very difficult to demonstrate the fact that there was a foreign body there, I think it was my impression that there was and I think I advised an effort being made to remove it. I was probably emboldened in that idea because I had rather a fortunate experience in getting glass out of the eye in a young man. He was playing tennis—he was a myope wearing glasses—the glass was struck with the racket and quite a large piece was embedded in the lens. I saw him within two hours of the accident and the presence of the glass was clearly demonstrated. The next day in consultation with Dr. Bull he felt inclined to leave it and make an effort to get it out when the lens became sufficiently opaque or fully to justify extraction of the lens itself. We waited for a few days and he developed rather alarming symptoms, swelling with considerably increased tension and pain. Dr. Bull advised waiting, but I wanted to take it out. The result was we made an effort to remove the glass. An incision was made in the periphery of the cornea with a large keratome and the lens substance evacuated very clearly. It was difficult to make out the foreign body; we could not see it. However, I introduced a wire loop and got the glass. The result was very satisfactory, he has 20/20 vision. I recall another case of foreign body in the lens which ended rather disastrously. The man, a military officer from Rio Janerio, came up to New York, having a history of some injury to the eye and some effort to remove the foreign body. We had an X-ray by Dr. Dixon which demonstrated a small foreign body in the lens. At the time I saw him the lens was completely opaque. We made an incision and did capsulotomy and removed the lens and removed the foreign body. The man did well for a few days and on the fourth day showed endogenous symptoms and finally lost his eye with panophthalmitis.

Dr. S. Lewis Ziegler, Philadelphia: I had a case somewhat similar to this from an explosion of an electric lamp globe in



which a small spicule passed into the lens and ultimately from its sharpness produced calcification of the lens. I think that will occur here because of sharpness of the glass. These spicules of glass will travel. I recall a case: The lady's spectacle lens was broken by some boys throwing stones out in the Park. The small spicule passed into the eye and was apparent there. It was in the fundus. It was not removed because vision was so good and she declined operation, which would have been very difficult because of inability to see the small foreign body, and this small spicule passed out through the sclera and was embedded in the muscle below and there was insufficiency of the muscle amounting to  $30^{\circ}$  to  $35^{\circ}$  and eventually it appeared and was removed. So that like small needles in the body the spicule of glass is likely to travel.

Dr. William M. Sweet, Philadelphia: I reported in 1905 the case of a man, a locomotive engineer, who had a piece of glass in the eye not suspected at the time. I saw him six months later with a severely inflamed eye. An X-ray was made and showed a piece of locomotive gauge in the posterior chamber in close vicinity to ciliary body. I operated, made a corneal section with the keratome and managed to secure a piece of glass. The wound healed nicely and the man had a useful eye afterward. In regard to X-ray examination of these injuries from glass: I would rather see any other case than that of injury from glass come to me. I think in these injuries from glass you are as likely to have sympathetic inflammation from sharp glass as from any other body. Before we had the X-ray the prism tube for glass and stone, I saw a case under the care of a physician in Philadelphia, in which the lenses had been broken. The eye was treated for five or six weeks and then sent to Jefferson Hospital with inflammation in the other eye. There was a small piece of glass embedded in the ciliary body. I believe in those injuries in which we cannot say positively there is no glass in the eye and in which inflammation still continues in the eye, those eyes are more safely removed.

Dr. C. H. Beard, Chicago, Ill.: Probably some of the members recall a case of glass in the eye that I published some years ago, I think in Knapp's Archives, that gave me a suggestion in regard to the handling of a bit of glass or foreign body of any kind in the posterior chamber. It is well known that a foreign body is not tolerated in the posterior chamber anything like it is in the anterior chamber. The patient was

a chemist in the Standard Oil Co. He experimented with certain gases at a retort, it exploded and one piece went into the eye. There was a wound in the cornea and just a tiny speck on the anterior capsule. It was at first thought that the foreign body had penetrated the anterior capsule. There was no shadow to the X-ray. The eye would flare up with tremendous inflammation and then subside. I put him in the hospital twice. Finally, it quieted down so that I ventured to send him home. The very first night he was home he went down into the basement to see in regard to his furnace and in order to see into the grate bars of the furnace he almost stood on his head and felt something in his eye. It was very evident something had occurred there. He came back to me and there in the anterior chamber was the glass as plain as could be. The explanation of it was that in getting down in that position the glass slipped from the posterior surface of the iris and fell into the anterior chamber. That would certainly be one way to get it to go into the anterior chamber where it could be better dealt with.

**Report of Six Cases of Degeneration of the Cornea (Nodular Keratitis) in the Same Family.**

Dr. Dunbar Roy, Atlanta, Ga.: These cases are reported because of the rarity of the disease. So far as I can determine the largest number of cases hitherto reported was three (McNab and Fehr). My own cases consisted of a mother and five children, all of whom presented the same clinical symptoms, differing only in degree according to ages. The vision was dim and could not be corrected. The cornea showed various opaque spots which projected slightly from the surface. Every known method of treatment was used without result. The absence of all inflammatory signs is one of the cardinal features of the disease. I do not regard the condition as tubercular.

**DISCUSSION.** Dr. John E. Weeks, New York City: These cases are very interesting indeed as they are, as we all know, extremely rare. The question in regard to the etiology, that is in regard to their being tubercular, is one of a good deal of interest. It seems to me, however, that tubercle can be excluded because of the history of the cases. These conditions come on as a rule, or rather they are very slight indeed in early youth, but they advance as the individual grows older up to the age ordinarily of twenty or twenty-one years and then after that they remain very nearly stationary so far as my experience goes. I have observed only a few cases and have read the literature to some ex-

tent. Tubercle as it develops in cornea, is accompanied by more or less inflammation and presents an opacity that is almost characteristic of tubercle, it is quite white in its appearance and very light gray and the tubercle is a miliary tubercle and changes as time goes on. It has no particular time of development and the history and the clinical picture present a condition which can hardly be confounded, in my opinion, with this disease.

#### **Calcareous Degeneration of the Cornea and Lens Capsule.**

Dr. Frederick Tooke, Montreal, Canada. The condition occurred in a male adult following a traumatic ulceration of the cornea several months previous to the enucleation of the eyeball. Vision was lost shortly after the accident. The patient had suffered from recurrent attacks of severe pain and from redness about the eye. On examination, the eye showed a light yellowish gray deposit, round in form, in the cornea directly over the pupillary area. A condition of deep injection was present, the eye was painful, and intra-ocular tension was distinctly raised. Perception of light was absent and enucleation of the eye was performed on account of the glaucomatous condition. Microscopic sections through the cornea show definite deposits of lime salts in the superficial strata of the substantia propria corneae, most marked over the pupillary area. The deposit is also distinctly evident in the neighborhood of the vessels about the limbus corneae. It is possible that the deposition of these calcareous salts may have some relationship to Bowman's membrane. There is no definite bone tissue to be made out, and Haversian systems cannot be determined. The characteristic changes occurring in chronic glaucoma are noted at the filtration angle. On cutting through the lens, before imbedding it in celloidin, it cracked like an egg-shell, the lens substance escaping in the form of a clear fluid resembling the vitreous humor in color and consistence. Chemical examination of the calcified lens capsule gave the characteristic reaction for lime salts. Exhibition of macroscopic and microscopic specimens.

#### **Fracture of the Skull with Hemorrhage into the Optic Nerve**

##### **Sheaths and Retinas, with Microscopic Examination of the Eyeballs.**

Drs. G. E. de Schweinitz and T. B. Holloway, Philadelphia: The patient, a man aged about fifty-five, was brought unconscious to the University Hospital. Ophthalmoscopic examination revealed in each eye numerous retinal hemorrhages,

superficially situated, and in the right eye one large hemorrhage partly covering the disc above and below, and in the left eye a similar hemorrhage covering the whole area of the disc and extending on each side of it. The patient lived only an hour after coming to the hospital, and at the autopsy some fatty degeneration of the heart, with slight fibrosis of the valves, was found. The aorta and coronary vessels were somewhat atheromatous and the kidneys showed granular change. Extending from the posterior occipital protuberance near the parietal suture to the base of the zygoma there was a fissure fracture. A profuse subdural hemorrhage was found involving the whole cerebrum, but not the cerebellum. Microscopic examination of the excised eyeballs showing the position of the hemorrhages in the ocular tissues was made.

*DISCUSSION.* Dr. Howard F. Hansell, Philadelphia, Pa.—The subject is one of very great interest to the ophthalmologist and the surgeons and to the neurologist and may be looked at from a little different standpoint from the one Dr. Holloway has so ably laid before us. I refer to the cases in which the hyperemia is diagnosed a week or two after the injury. My attention was called to this by a case in which I was asked to examine the eye ground in the Jefferson Hospital by Dr. Nassau this winter. The patient was a woman 30 years old, whose head had been jammed in a trolley accident. Dr. Nassau was unable to recognize that she had fracture of the skull. When I looked at the eye ground I found decided hyperaemia and tortuosity of the veins without edema or hemorrhages. She was in bed and in such a critical state it was impossible to go further with the examination. On my report on the eye ground he determined to operate on the skull and so he did—an osteoplastic operation on each temple, with the result of removing a large clot of blood from each side of the meninges. He said that he had done this operation because of my report and that this venous hyperemia of the retina entirely disappeared as the woman recovered. I think then that it was not due to the direct injury but rather a symptom of commencing optic neuritis or choking of the disc such as we see in tumors because of the collection of a large amount of blood on each side of the skull compressing the circulation and altering the relation of the circulation of the head and of the eyes.

**Polypoidal Formation in the Lacrimal Sacs.**

Dr. Frederick Tooke, Montreal, Canada: The condition is seldom met with if one is to regard the few cases recorded in ophthalmic literature. This may possibly be due to negligence and waste of material in pathological investigation and research. From a series of fifty lacrimal sacs examined microscopically by the author, two were cases of definite polypoidal structure. The patients were young adults who had complained of epiphora for several years. There had never been any purulent discharge from the sacs, although one patient gave a history of an attack of acute inflammation about the sac occurring a short time prior to its extirpation. The canaliculi had never been slit and the ducts had not been probed. Diagnosis was established by means of the lacrimal syringe. A nasal examination in one case revealed a condition of chronic rhinitis, in the other a deviation of the nasal septum. There were no nasal polypi nor any discharge in any way suggestive of a suppurative condition in the accessory nasal sinuses. Pathological investigation shows these structure to be of the pediculated variety, and situated in the neighborhood of the nasal duct. Each was approximately 4 mm. long, the one of a pearl gray color, the other suggestive of a distinctly more vascular formation by its red color. Microscopic examination shows tissue changes suggestive of a process of strangulation rather than suppuration in the mucosa, which is substantiated by the intact condition of the epithelium lining the mucous membrane, the infiltration involving the submucosa only. There were no bacteria found in the tissues.

**A Case of Bitemporal Hemianopsia with Acromegaly Due to Pituitary Disease. Diagnosis Confirmed by Autopsy Eighteen Months Later.**

Dr. Samuel D. Risley, Philadelphia: I present in brief the history already published in full (*Annals of Ophthalmology*, January, 1912) of a patient aged 65 with bitemporal hemianopsia and well-marked features of acromegaly adding the autopsy confirming the diagnosis. The symptom complex pointed to disease in the pituitary region and X-Ray study showed an enlargement of the sphenoid, the anterior and posterior clinoid processes bending toward each other, forming an incomplete foramen, but left the presence of any enlargement of the soft parts or the presence of a tumor in doubt. The patient regarded herself in good health, had no pain, but



suffered an uncontrollable drowsiness. She was first seen in October, 1910. In December, 1911, and February, 1912, there was no notable change in her condition. In March, 1912, she died of an intercurrent lobar pneumonia. An autopsy was secured for the results of which Dr. Risley was indebted to Dr. David Riesman of Philadelphia. At the base of the brain a large tumor was found 5 cm. in length and 5 cm. in width and  $3\frac{6}{10}$  inches thick, oval in shape, resting on the frontal lobes, anterior to the optic chiasm and compressing both optic nerves, making a distinct concavity in the mesial aspect of the frontal lobes. Lying in front of the chiasm it was slightly separated from it. On the lower surface of the tumor, near its middle, was a smooth, cup-shaped depression  $2 \times 2\frac{1}{2}$  cm. in depth caused by the projecting posterior ethmoidal cells. The tumor was well encapsulated, finely nodular on the surface and the capsule very vascular. In the anterior fossa in front of the sella turcica the floor of the skull was raised in an irregular manner, in an area the size of a small walnut. The bone here was thin, porous, dark in color and when chiseled away the posterior ethmoid cells were found to contain a large amount of thick yellow purulent material. The tumor seemed to have entirely replaced the pituitary body. The brain otherwise showed nothing abnormal. The tumor proved to be, on examination, a highly vascular spindle cell sarcoma. In the sections made no trace of the pituitary body was found.

**DISCUSSION.** Dr. Howard F. Hansell, Philadelphia: Dr. Risley mentioned as one of the symptoms of his patient, drowsiness. The only patient I had who died and who had a post-mortem examination which revealed the diagnosis of this character, was a man who had some of the symptoms of tumor of the pituitary body without, however, acromegaly. He had partial growing atrophy of the optic nerve without very marked hemianopsia. The symptom that was the most striking, with the exception of the gradual loss of vision, was the drowsiness. He slept for a period of several months for nearly twenty-four hours out of twenty-four. The accurate record was twenty-two hours out of the twenty-four, so I was glad to hear that this was a common symptom in Dr. Risley's case, because in most cases of tumor of the pituitary I have not been able to find that this was a prominent symptom.

Dr. William K. Rogers, Columbus, O.: A case I have had under observation for the past two years has presented some

unusual symptoms. A boy between fourteen and sixteen years of age, in whom the diagnosis of acromegaly had been made by an adequate authority and in whom this symptom of drowsiness is quite prominent, presents a varying degree of choked disc. There is no material alteration in the fields of vision, his visual acuteness varies slightly, but the discs present a coarse variation of elevation from time to time. He has responded occasionally for periods of several months at a time to the use of thyroid extract. Just why I have not determined.

Dr. Edward Jackson, Denver, Colo.: Within a few months I have seen a case of bitemporal hemianopsia where there was absence of any symptoms of pituitary disease and absence of any discoverable lesion of accessory sinuses of the nose, in which a careful study of the case by neurologists resulted in diagnosis of arsenical poisoning. There was also considerable optic atrophy.

Dr. Thomas B. Holloway, Philadelphia: It seems to me that one of the most interesting factors in Dr. Risley's case is the location of the growth. I have recently had occasion to partially cover the literature on this subject, and Dr. Risley's is the fifth case that I know of in which the growth had an anterior position.

#### **Case of Amblyopia from Inhalation of Methyl-Alcohol.**

Dr. Henry H. Tyson, New York City: The patient, a man, aged twenty-one years, after working two days shellacking the interior of beer vats, suddenly lost his vision with accompanying symptoms of methyl-alcohol poisoning. Examination of fundi oculi revealed double optic neuritis, with dark, dilated veins, and extensive retinal edema, especially along the blood-vessels. Pupils widely dilated, no light nor convergence reaction. Pain behind eyes during rotation of globes. Vision, R. E., 1/200; L. E., 2/200. Counted fingers only when held in extreme inferior temporal fields. Under treatment vision improved to 15/20, which has been retained for the past month. The visual fields are markedly contracted for white and colors, with numerous scotomata scattered throughout.

*DISCUSSION.* Dr. Peter A. Callan, New York City: The vision in these cases is certainly of interest. I recently saw five cases in the New York Eye and Ear Infirmary from drinking wood alcohol. One of two of these men who became house patients was able at the end of eight days to see

objects around the ward; the other man at the end of the fifth day. At the end of three weeks both men had fairly good vision. At the end of four months it fell in both of these cases and has remained so that they can barely pick out the test letters. The peculiar feature in these two cases for the first three weeks after they recovered their fair amount of vision was the field; they had inversion of red and green.

Dr. Robert Sattler, Cincinnati, O.: I am certainly pleased to hear more favorable reports about wood alcohol poisoning. In the two cases I had this was not so. In both cases it was from imbibition. Blindness in both instances was permanent and complete from the first and remained so. Both were strong, healthy men and both had been working. One spent one day in a theater cleaning out with alcohol. As a result blindness came on during the night; he awakened during the night and found himself blind and remained so. It is certainly gratifying that other cases can occur and do get well.

#### **Hereditary Optic Atrophy (Leber's Disease), with X-Ray Findings.**

Dr. William Evans Bruner, Cleveland, O.: The patient, a man aged thirty-six, complained of gradual but steady failure of vision for nine months before examination. Family history and clinical symptoms pointed strongly toward Leber's disease, or hereditary optic atrophy. Examination by the Roentgen rays revealed much enlarged sphenoidal cells, but treatment along this line accomplished nothing. Similar examination of two other members of the family, with the same disease, also showed enlarged sphenoidal cells, much larger than in members of the family not having the disease or in normal individuals. While not wishing to present the X-Ray findings as the cause of the optic atrophy, I wish to offer it as a subject for further investigation in other patients showing the same disease.

**DISCUSSION.** Dr. Alexander Randall, Philadelphia: In reference to the point made of the exaggerated response to the rotation test, I would call attention to the influence, perhaps very great, in these cases of central scotoma and would raise the question, for which I have not an answer at present, whether all cases of central scotoma in their inability to fix will not show a materially exaggerated response to the nystagmus and rotation test.

**A Case of Transient Blindness, Complete in One Eye, Partial in the Other, with Double Optic Neuritis.**

Dr. Howard F. Hansell, Philadelphia. A girl, aged eight, had double optic neuritis and edema of the adjoining retinas, more marked on the right side. The right eye was totally blind, the left counted fingers at three feet. No history of syphilis or tuberculosis, and no cause could be assigned. Immediately after lumbar puncture vision improved; the improvement continued under the use of mercury and potassium iodide until vision was completely restored. The ocular muscles, which also had been disabled, resumed their respective functions.

*DISCUSSION.* Dr. Charles H. May, New York City: I would like to relate the history of a patient which resembles that of Dr. Hansell's, except in pressure symptoms. A woman of 28 complained of slight dimness of vision; examination of fundus showed no changes. After a week or two the disc showed slight changes at its margins. After three weeks there was almost total blindness. Then the discs presented more changes and there was some blurring of the outlines and the diagnosis would probably be made from the clinical standpoint of optic neuritis and not choked disc. The blindness at the end of three or four weeks became complete. She was a very wealthy woman, and all sorts of consultants were called in. The case was seen with me by Dr. Gruening. The family physician examined her, the reaction was undertaken for tuberculin, the Wassermann test was made, a neurologist went over the case and absolutely nothing could be found, excepting the slight changes in the discs. Under these circumstances it was decided to have a lumbar puncture performed. This was after the blindness, incomplete at first, complete at the end of three weeks, had lasted for a few days. On the day that the specialist, a man who performs this operation exclusively in New York, arrived the woman objected to the lumbar puncture and said she thought there was just a faint perception of light. I could discover none, but in deference to her wishes the operation was postponed. Under these circumstances, not knowing the cause, she was placed in an empirical way upon iodide of potassium in moderate doses and small doses of mercury. After a week there was a return of a little vision. After four weeks the vision had returned so that she had perhaps 50 per cent of vision. After six weeks vision was normal and the

fields were fairly normal, contraction of perhaps 10' or 15', the optic nerves were beginning to become pale and at the end of three months they began to be bluish-white. The fields are very good with contraction of 10' or 15°. Nobody has ever found out the reason of the slight optic neuritis nor for the pallor of the discs that has persevered, and, if she had had a lumbar puncture performed on that day, we would probably have said that her recovery was due to that procedure.

Dr. R. A. Reeve, Toronto, Canada: Exceptionally one will meet with an anomalous case. Just before leaving home a boy was brought to me who had lost the sight of the left eye. He had had absolutely no sign of any disease. He had never had a headache in his life. None of the symptoms of pressure whatever and was a healthy boy. All sorts of tests had been made by experts except the tuberculin test, and there was no reason to suspect tubercle, although I advised the usual eye test. I found in his left eye the secondary, so-called atrophy of the optic nerve. The nerve was quite pallid, the edges slightly disturbed and the vessels sinuous. The right eye presented the picture of simple optic neuritis and not choked disc. Vision of right eye was normal, the field of vision was normal and the color fields were normal. The pupillary reaction was normal and I was just leaving home and I had no opportunity to examine the case further, but I thought I would mention it as one of the anomalous cases different from that presented by Dr. May, but one which seems rather puzzling as to its etiology and as to its treatment.

Dr. Hiram Woods, Baltimore, Md.: It is rather hard sometimes to judge of the effect, apparent effect, of remedies. I had sometime ago a case the result of which I learned only last week. A boy of six years old was sent to me from a town in West Virginia. He was totally blind in both eyes. He had started out to go on a picnic with his family and on the way to the station he had a vomiting attack, was taken home and after that vomiting attack was blind. I tried to get a history of some exposure to poisonous substances. It looked like a sudden attack of some toxic blindness, but I could not find a history of anything of that kind. The boy had an optic neuritis in both eyes, the swelling was certainly three or four D. We could not get anything but constant blindness, definite neuritis developing. I saw him probably ten days after the blindness came. Dr. Cushing saw him and first he suggested



a lumbar puncture. The lumbar puncture was done. The spinal fluid was examined by a Wassermann test and was negative. He was given the Von Pirquet test and it was positive, as it usually is in children. Cushing wanted to do a decompression and the parents refused to have it done. The boy left Baltimore without perception of light. He was there ten days. I did not hear any of the history until I saw the doctor. The attending physician put him on small doses of bichloride of mercury and he had gotten entirely well. The cause of the optic neuritis we never were able to discover.

Dr. Samuel D. Risley, Philadelphia: I have been very much interested in Dr. Hansel's case because it represents, I think, in a measure in many of its aspects some cases I can recall from memory, the inexplicable and more or less sudden blindness resulting in many instances in recovery under the use of iodide of potassium. As illustrative of this rule, I recall a woman who applied for treatment at the Wills Hospital many years ago, who, while over the ironing board in her kitchen on a hot summer day, suddenly lost her vision and was brought to the hospital. I found edema of the retina in both eyes, with full veins and a bright red spot at both maculae. She slowly recovered under the administration of iodide of potassium, but with impaired vision in consequence of macular changes which were present.

#### **Flat Sarcoma of the Choroid.**

Dr. Cassius D. Wescott, Chicago, Ill.: The literature of the subject is reviewed, referring to Parson's paper in 1904, which treats of 31 cases reported up to that date; and to the cases of Knapp, Wooley, Henderson, Goldberg, and Luedde reported since 1904. Two new cases are reported:

Case I.—Male, first examined in 1894, and refracted without a mydriatic, as he refused to allow its use. Vision with correction, R. E., 6/22; L. E., 6/6. In 1897 vision of R. E. was reduced to counting fingers. An optic neuritis was discovered, but no swelling of the choroid or detachment of the retina. He confessed to heavy drinking and to a blow over the right eye and a fractured jaw in 1894, prior to first examination. He refused mydriasis, and did not return for treatment until two years later, at which time the R. E. showed plus tension, partially dilated pupil, milky lens, clouded vitreous, and no fundus details. Despite warnings he failed to return until ten months later, when the cataract was mature, the

pupil fully dilated, the anterior chamber almost obliterated, the episcleral vessels engorged, and tension plus 2. Enucleation was performed. An umbrella-shaped tumor of the choroid was found, which perforated the sclera far back. Microscopic examination showed a moderately pigmented, alveolar sarcoma containing large and small, round and spindle-shaped cells. Death one year later from exhaustion, due to metastases involving the liver, lesser omentum, and bone; no recurrence in optic nerve or orbit.

Case II. Female, aged forty-eight, examined in September, 1910. Complained of poor vision in the right eye, dating from five years before, and growing worse. One year prior to examination was seen by a colleague, whose records show a diagnosis of neuroretinitis, and vision of 20/200. The eye was now blind from a nearly complete detachment of the retina. Eleven days later patient returned with an acute congestive glaucoma, and confessed to two or three previous attacks. Enucleation was performed on the following day. Microscopic examination revealed a flat melanosarcoma of the choroid with extension through the sclera about and into the optic nerve. No recurrence in nineteen months.

*DISCUSSION.* Dr. John E. Weeks, New York City: These cases are not so common. I have examined one only such case and have not reported it. It came under my observation while still an interne at Knapp's clinic.

#### **Report of Three Cases of Sarcoma of the Eye.**

Dr. S. C. Maxson, Utica, N. Y.: One of my cases was a boy of 19, who complained of dimness of vision and pain in the eye. A tumor the size and color of an apple seed protruded at the upper border of the pupil. Antiluetic treatment was tried without result and finally the eye was enucleated six weeks after the tumor was noticed. There has been no recurrence one year afterward. Another case was a sarcoma of the choroid in a woman of 68, who complained of pain and almost complete loss of sight. The eye was enucleated 8 months ago and there has been no recurrence. The third was a case of congenital sarcoma of the orbit with exophthalmos associated with about sixty other tumors varying in size from a peanut to a chestnut in different parts of the body. The child lived three weeks. I have not been able to get the history of a similar case.

*DISCUSSION.* Dr. R. A. Reeve, Toronto, Canada: The

reader of the paper gives us, I think, one and a half years as the longest interval without recurrence. In a discussion upon sarcoma in this Society some years ago I reported a case of sarcoma of the orbit in which I had enucleated an eye for acute glaucoma without having had an opportunity of examining the fundus. The patient had cataract. The larger part of the vitreous chamber was occupied by a pigmented sarcoma. The patient recovered promptly and there was no apparent trouble until he presented himself fourteen years afterward, when he had sarcoma of the orbit. I ventured the opinion that it was not a recurrence of sarcoma, but a development from a fresh center further back.

Dr. J. E. Weeks, New York City. In regard to sarcoma of the ciliary body I would like to call the attention of the gentlemen to the fact that some of these cases have been described as tubular sarcoma and the cases of tubular sarcoma are really, so far as I have been able to ascertain, carcinoma of the ciliary body springing from the epithelial layer of that body.

#### **A Case of Primary Intradural Tumor of the Optic Nerve.**

Dr. William M. Sweet, Philadelphia. Man, aged thirty-three, was struck in the left eye three years previously by a large lump of coal. A year later noticed marked impairment of sight. Beginning exophthalmos about ten months before examination, the protrusion gradually increasing. Hertel's instrument showed R. E., 14 mm., L. E., 29 mm. Eyeball turned upward and slightly inward, with marked limitation of movement downward and outward. Exploratory incision through upper orbital margin, outer side, showed large growth entirely filling apex of orbit, too large to be removed without enucleation of the eyeball. Pathological examination was made by two pathologists and, while a satisfactory classification was not arrived at, it seemed not to be malignant and to resemble most closely the angioma. There has been no recurrence.

#### **A Case of Plexiform Neurofibroma Involving the Orbit.**

Dr. W. Zentmayer, Philadelphia: Girl, three and one-half years old. Hydrocephalic and poorly nourished. History of fall upon the head two weeks before the appearance of the growth. Hemispherical mass in the left temporal region with an extension across the rim of the orbit and a prolongation between the globe and the roof of the orbit to the apex.

Mass feels like a bundle of cords. No buphthalmos. At operation fibrous cords found to pervade the temporal, frontal, and orbital region, with a vermiform cord extending to the apex of the orbit. Death twenty-eight hours after the operation, probably from shock. Microscopically, the growth was made up of a mass of fibrous tissue with varicosed semitranslucent cords pervading it. Microscopically, medullated and non-medullated nerve fibers in a mass of fat and connective tissue. Moderate vascularity, blood-vessels both of capillary and well-formed arterial type.

**Report of a Case of Endothelioma at the Apex of the Orbit, with Demonstration of Specimen.**

Dr. John E. Weeks, New York City: A woman, aged thirty, consulted me complaining of blurring of vision of the left eye and halos about lights following a severe blow on the left side of the head two months previously. There was some exophthalmos, but no pain or discomfort. Seven years later the patient was seen again and had grown worse, being entirely blind in the left eye with limitation of motion in all directions, but no pain. The skiagraph showed a hard mass projecting into the orbit. A Krönlein operation was performed in February, 1912, and a small dark red mass was removed from the apex of the orbit which proved to be an endothelial sarcoma.

**DISCUSSION.** Dr. Dunbar Roy, Atlanta, Ga.: Last year I had two tumors, one about the size of an almond, one a little larger, one fibroma, the other angioma. After diagnosis of tumor had been made—there was proptosis, decided protrusion downward and outward—I decided to go in above the upper orbital ridge, and I was surprised with what ease the tumors could be removed in that manner. The incisions heal up very readily, and I really think with tumors in the orbital cavity that we can go into the orbital cavity and remove these tumors without doing any very large major operation.

Dr. John E. Weeks, New York City: The recovery from the Krönlein operation is perfectly satisfactory provided not too much traumatism is done. I prefer Krönlein's operation. Such a tumor as I have described could not have been reached by an opening into the orbit such as Dr. Roy described.

**A Case of Chloroma and a Case of Tumor of the Optic Nerve.**

Dr. Robert Sattler, Cincinnati, O.: A boy aged 11 showed extremely rapid growth of subperiosteal neoplasm involving

both orbits and adjacent temporal and frontal regions, accompanied by excessive prostration, epistaxis and pain in the back and chest and quickly followed by exophthalmos and destruction of both eyes. Autopsy showed multiple pea green infiltration scattered through the pericranium, dura, spinal column, sternum and internal organs which proved to be chloroma. I also report two cases of tumor of the optic nerve, one a fibrosarcoma with operation and with the patient in good health two years later. The other on intradural fibrosarcoma in a boy aged four with operation and with the patient in good health fourteen months later.

**DISCUSSION.** Dr. Arthur J. Bedell, Albany, N. Y.: In 1908 I had occasion to see my first case of chloroma, which was in a boy of 9. We had very elaborate chemical tests made and were unable to determine the source of this typical color. The second case was that of a woman of 20, married, who was eight months pregnant at the time. She died within six weeks of the first symptom, which was proptosis of both eyes. On autopsy we found that we had a green infiltration of every part of her body, including large masses in the uterus. The fetus also had green infiltration in parts of the body. I speak of the cases because they are unusually rare. At the time of going over the literature 44 cases only were on record and only four of these had been diagnosed previous to death.

**The Treatment of Trachoma with Radium. The Use of Radium-Coated Celluloid Plates for This Purpose.**

Dr. Charles H. May, New York City: Innumerable agents have been used for the cure of trachoma with a view of shortening the duration of treatment and lessening the attendant pain and discomfort, which are associated with remedies now in vogue, of which sulphate of copper is the most popular. Radium has been employed for this purpose. Experiments upon animals have shown that, when used in large amounts and long exposure, this remedy induces disastrous results upon the eyeball; but when employed in amounts sufficient for the purpose and with exposures of limited length, the agent is harmless to the globe. Various observers have investigated the effects of radium treatment of trachoma. The reports of the results of such treatment have been somewhat contradictory; a number of well-known ophthalmologists have claimed excellent results; others have been less enthusiastic; some have found radium less effective than certain older remedies. It is evident that radium has not become popular for the cure of



trachoma, as the remedy is very expensive and the limited quantity available makes the treatment of any number of patients impracticable. The writer employed radium in a less expensive and more available form.

**Recurrent Retinal Hemorrhages Occurring in the Young, with Report of Case.**

Dr. A. Edward Davis, New York City: Juvenile hemorrhage into the vitreous is the special type of hemorrhage which is here considered. No specific cause can be ascertained. It occurs between the ages of fourteen and twenty-five years, more frequently in males. Puberty, gout, rheumatism, constipation, anemia, etc., have been considered as causes. Axenfeld claims that tuberculosis is the specific causative agent, and great weight should be given to his claims. In every case the tuberculin test (by hypodermic injection) should be made; and, if positive, the tuberculin (new) treatment should be given. Wassermann reaction should be tried, and repeated urinary examinations made. Autotoxemias may be a causative factor. Collins and Mayou assign increased coagulability of the blood as a possible cause, while decreased coagulability is also mentioned. Marked perivasculitis of the retinal vessels may be present, as in de Schweinitz's case and in the one reported here. The symptoms are red specks or a red haze appears in front of the eyes; or, with a large hemorrhage, vision may be almost completely lost. Where the hemorrhage breaks into the vitreous, dark clouds with reddish borders may be seen. Pain may be present. The blood-vessels may be surrounded by white borders indicating perivasculitis. In the later stages, if retinitis proliferans develops, connective-tissue bands and new blood-vessels may be observed with the ophthalmoscope. The treatment in the early stages consists in rest in bed for a few weeks, diaphoresis, and mild purgation, with calcium lactate or adrenalin on alternate weeks. Injection of human blood serum should be tried. The diet should be regulated, and the kidneys watched. Ligature of the common carotid has been practiced as a last resort. Locally, cold cloths, leeching, subconjunctival injections of normal salt solution, or applications of this same solution warmed. Later, iodides, mercury, and general tonics should be given. After the first few weeks daily moderate exercise in the open air and cheerful surroundings are indicated.

**DISCUSSION.** Dr. John E. Weeks, New York City: These cases of hemorrhage in adolescence are extremely inter-

esting. I do not think that they all belong to the same category. This case reported by Dr. Davis undoubtedly had a condition in which the coats of the arteries have been weakened almost throughout the system by some toxic influence. We have a toxemia in this case without a particle of doubt. I do not think that local treatment in these cases has as much, if any, effect. Subconjunctival injections have been worthless in hemorrhages of the retina. Too much importance has been attached to the results of subconjunctival injections, whatever they may be. In cases of syphilitic infections of the eye you may get the results from the use of cyanide of mercury. Injections of bichloride of mercury or other preparations have not in my hands given adequate results. I think we must reach these cases through the system by the use of remedies which will change the condition, eliminate the toxemia and strengthen the walls of the blood vessels so as to prevent the leakage which takes place.

Dr. S. Lewis Ziegler, Philadelphia: Following the suggestion recently made as to the treatment of uterine hemorrhage by hypodermic injections of ampoules of pituitary extract, I have had very good success in one case with that treatment. As to the absorption of the hemorrhages, I think that there is no remedy comparable with extract of thyroid in small doses. You can accomplish more with that in a few weeks than you can in months by any other treatment, with one exception, and that is galvanism. Judging from the reports of various physicians you can use either the positive or the negative galvanism. I have always used the positive.

Dr. J. Scott Wood, Brooklyn, N. Y.: This case is simply typical of the course these things take; repeated hemorrhages and then there comes a time when they stop. Either the improved nutrition has caused this or the rest. I do not believe there is any one remedy that can be relied on. In one of the cases reported by me a year ago definite evidence of intestinal toxæmia was present. I recall one where helminthiasis was at the bottom of the toxæmia and the patient seemed to get better after the parasites had been expelled. The general results of all the cases I got hold of—there were 100 or more—were that the recurrent hemorrhages were very apt to develop into retinitis proliferans and a number of them developed chronic glaucoma with increased tension.

Adjourned.

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

The May Ordinary Meeting of the Society was held in the Theater of the Royal Dublin Society on Saturday, May the 11th.

MR. J. E. LAWFORD, F. R. C. S., PRESIDENT, IN THE CHAIR.

Dr. Lediard read a paper entitled "Melanotic Sarcoma of the Choroid with General Metastasis." It was a case in which metastases were seen in the liver and intestines, occurring in a woman aged 55, who came under treatment in the Cumberland Infirmary with symptoms of gall-stones. During operation it was seen that the liver was diseased and on incision a black tumor was discovered. Three years previously the patient had had the left eye removed in the Manchester Royal Eye Infirmary, on account of intraocular growth, correctly diagnosed. Vision had been failing for two years, and when the eye was removed, there was pain, blindness, cataract, increased tension and shallow anterior chamber. The secondary growth in the liver showed masses of spindle-celled sarcoma, of melanin. There was also an invasion of the mucous layer parts of which were pigmented and others free from granules of the intestine by pigment leaving sarcomatous cells lying between the gland follicles. The chief tumor within the liver was as large as a small sized orange and absolutely black. The gall stone removed was a single large one weighing 139 grains when dry and measuring one and a half-inches by one inch.

Mr. Jessop asked whether members really thought there was such a thing as a leucosarcoma; he had always been able to detect pigment microscopically in every choroidal sarcoma no matter how white they appeared to be. Dr. Inglis Pollock and Mr. Devereux Marshall said that they had never seen a true leucosarcoma, a certain amount of pigment was always present.

Mr. Arnold Lawson expressed the belief that sarcoma of the choroid was really not a very malignant disease and that many cases were cured if the eye was removed early enough.

Sir Henry Swanzy agreed with Mr. Lawson.

Mr. Hill Griffith said that of the cases he had reported, about 50 per cent were well three years after the primary growth was removed and he doubted whether removal of the eye made much difference to the possibility of general metas-

asis, some cases removed in quite an early stage proved generally very malignant, while others remained for years and produced no metastasis at all.

Mr. Holmes Spicer mentioned the case of a patient whose eye he removed in 1898 and who still showed no further signs of the disease. He also mentioned another case where the patient refused treatment ten years ago, and he was still well.

Mr. Berry doubted if a growth which appeared ten years after the removal of an eye for melanotic sarcoma was really a metastasis at all. He believed that leucosarcoma did occur, and the sooner all these cases were operated upon the better was the chance of life.

Mr. Bishop Harman thought that the younger the patient was, the more malignant was the growth.

Mr. Bishop Harman (London) read a paper on  
"A New Operation for Squint—Sub-Conjunctival Reefing and Advancement."

Mr. Harman said that despite a growing condemnation of tenotomy, the operation still lived in out-patient practice because of its facility. To secure reasonable prospects of success with the operation of advancement, with or without tenectomy, the patient had to be put to bed with both eyes bandaged. His aim in devising this new operation of reefing-advancement was to avoid these difficulties. He believed that he had succeeded in this. The operation he described was comparatively easy to perform, and expeditious. Of the 34 patients he had operated on only one had been kept to bed, all the others had been outdoor patients with only the one eye bandaged. The results up to date were distinctly gratifying both to patient and surgeon.

Briefly, the operation consisted in exposing edges of the tendon to be shortened, then with special forceps folding or reefing the tendon, very much in the same fashion that the laundry-maid treats linen frills in the process of gollering. The operation could be varied according to the degree of squint: (1) The extent of the reefing or shortening of the tendon could be varied by the adjustment of the reefing forceps, (3) in high degrees of squint the sutures used to secure the reef were carried forward so as to advance the reef. The steps of the operation (say for convergent squint) were: (1) Securing the eye by the insertion of an anchor stitch at the limbus, this avoided fixation forceps, and the stitch was used to fix the eye

in addition at the end of the operation. (2) Locating the tendon. It was pointed out that there were distinct colour differences in the conjunctiva according as tendon or Tenon's capsule was beneath it. These differences were marked in the young. (3) Two buttonholes were cut through conjunctiva right to the sclera above and below and parallel to the edges of the tendon, between the insertion and the canthus. (4) The surfaces of the tendon were rasped with a squint hook, the edges of which had teeth. This stimulated the production of adhesions when this part of the tendon was folded. (5) The reefing forceps were applied to the tendon. The forceps were like squint hooks whose short, flat handles fitted together and were adjustable so that the hooks coincided or separated by varying widths. Working from the outer canthus one blade was slipped beneath the tendon and the other blade above the tendon and under the conjunctiva. When the forceps were turned from the outer canthus to lie across the nose the tendon was folded over or reefed. (6) The base of the reef was then fixed by appropriate sutures. If the squint was of low degree the operation was then finished. If it were of high degree the sutures were carried forward and fixed into the sclera at the limbus so that tying the sutures advanced the reef and further abducted the eye. (7) Finally the eye was completely abducted by means of the anchor stitch, this was fixed to the skin of the canthus with strapping. By this means relaxation of the antagonist of the operated muscle was produced and it protected the reef from too early strain. The eye was bandaged, the spectacles worn with a blinker besides and half covering the open eye so as to cause the patient to look towards the operated muscle. The anchor stitch was removed the third day, and the reefing stitches on the tenth day.

Mr. Bishop Harman also gave an account

**"Some Experiments to Ascertain the Security of Sutures for Squint Operations."**

He said that in squint operations four modes of placing the scleral sutures were possible. The part that traversed and gripped the sclera might be placed (1) In line with the axis of the tendon and at right angles to the limbus. (2) Across the axis of the tendon or parallel to the limbus. Further, each of these sutures might be made with a single or a double thread. To find out which of these possible modes gave the greatest security, Mr. Harman had made experiments with artificial materials and their tearing strain under weights. The



conclusion was that a double silk thread placed in the sclera across the axis of the tendon and therefore transversely to the strain of the suture had a carrying power from 12 to 18 per cent. greater than the other three modes. He had found these experimental data confirmed in practice. For that reason he inserted his stitches as above described in advancement operations.

Dr. Louis Werner (Dublin) read a paper on Disease of the Pituitary Body without Acromegaly. He gave a short history of the discovery of the disease and described what had been ascertained by experimental evidence and clinical facts. He discussed the course and symptoms and gave the views of various observers. A series of photographs were shown on the screen depicting animals and X-ray photographs of patients suffering from the disease, as well as micro-photographs of the pituitary body in health and disease.

Mr. H. H. B. Cunningham (Belfast) read a paper on Fusion Pictures. He emphasized the importance of training the fusion sense in young children, but thought that stereoscopes, etc., were too complicated and too expensive for general use. He had devised a series of pictures drawn in two colors, which could be seen through a colored screen. One part of the picture could be seen with one eye, and one with the other. Those for very young children were of a very elementary character, for older children they were rather more elaborate. In this manner, as in the case of an ordinary stereoscopic, binocular vision could be developed and educated.

Mr. J. Stroud Hosford (London), in describing a new method of extraction of cataract in the capsule, said that the operation was justly looked upon as a major operation, and the premier operation in ophthalmic surgery. Very serious dangers could be avoided if removal of the lens in its capsule could be done with safety. During the present year he had performed nine cataract extractions by a new method, which consisted of entering a discision needle into the lens, and then rotating the lens on an outer positive axis. This caused the Zonule of Zinn to be torn, after which the lens, in its capsule, could be removed without the loss of vitreous. The lens could be thus rotated either before or after the making of the section. If this method were adopted, incomplete lenses could be removed, and it had all the advantages of Smith's operation, besides being safer and not so complicated.

C. Devereux Marshall, Clerk.

### THE POSTGRADUATE COURSE IN OPHTHALMOLOGY, UNIVERSITY OF COLORADO.

The first summer Course in Ophthalmology given in the University of Colorado at Denver, was completed August third. It was the first course given in America laid out upon lines similar to those of the Course in Ophthalmology established three years ago at the University of Oxford. The following students representing nine different medical colleges regularly entered for the Course:

- Dr. George F. Libby, Denver, Colo.
- Dr. William H. Crisp, Denver, Colo.
- Dr. Daniel G. Monaghan, Denver, Colo.
- Dr. Chas. C. Reid, Denver, Colo.
- Dr. Hiram R. Stilwell, Denver, Colo.
- Dr. Samuel Z. Shope, Harrisburg, Pa.
- Dr. C. O. Petty, Beaver Crossing, Nebr.
- Dr. H. A. Smith, Delta, Colo.
- Dr. Edwin Lewis, Sedgwick, Colo.
- Dr. Frederick T. Avery, Chicago, Ill.

Part of the time there were as many as fifteen to twenty in attendance. An important contribution to the interest and enthusiasm of the undertaking was made by Eastern ophthalmologists, who took the journey to assist in the instruction. These were Theodore B. Schneideman, of Philadelphia, Frank C. Todd, of Minneapolis, Casey A. Wood, of Chicago, and L. Webster Fox of Philadelphia. Each of these gave two or more hours of instruction, and Drs. Wood and Fox conducted operative clinics at the Denver City and County Hospital.

The visitors to Denver, both teachers and students, expressed surprise at the extent of the clinical work in ophthalmology which the University of Colorado was able to offer. The Course included six or seven hours of class work daily, demonstrations and clinical conferences occupying a larger share of the time than lectures. Subjects important to the ophthalmologist were taken up by ophthalmologists not connected with the faculty of the University, and members of the faculty interested in other lines of practice. Thus: Dr. C. E. Walker demonstrated the more important operations on the eyes of animals; Dr. E. R. Nepper considered Office Apparatus and Arrangements; Dr. E. O. Sisson gave two valuable lectures on Examination of Conjunctival Secretions; Dr. D. A. Strickler discussed Ophthalmic Therapeutics; Dr. Robert Levy, The

Relation of Nasal Accessory Sinuses to Optic Nerve and Orbit; Dr. G. F. Libby, Heredity in Ocular Disease; Dr. G. H. Stover, Localization of Foreign Bodies by X-ray; Dr. Oliver Lyons, Latent Gonorrhea as a Cause of Ocular Lesions; Dr. W. C. Mitchell, the Wassermann reaction and salvarsan; Dr. G. A. Moleen, Paralysis of Ocular Muscles; Dr. G. E. Neuhaus, Optic Tracts and Centers; Dr. J. A. Markley, Skin Diseases Accompanied by Ocular Lesions; and Dr. Henry Sewall, Blood Pressure. Two instructive talks and demonstrations on the sketching of ocular lesions were given by Dr. Wm. C. Bane, and Dr. J. M. Foster took up vision and color tests for railroad men.

At the request of the Bavarian Automobile Club, the Munich Ophthalmologic Society has given an expert opinion as to the power of vision to be required of an automobile driver, of which the following are the principal points: 1. For the central acuity of vision in the better seeing eye a power equal to two-thirds the normal, and in the weaker eye a power equal to one-third the normal should be required, and this should hold good for all drivers whether the visual power is attained with or without glasses. Glasses for correction may be worn but must not be stronger than eight diopters. Reserve glasses are necessary and also the driver who wears glasses should be provided with a wind shield when rain or snow is falling and this should have a window that can be opened. 2. At the time of application for license as chauffeur an examination of the field of vision with the perimeter should be made and a plainly recognizable contraction of the field of vision in one eye should exclude the applicant from securing a license. 3. In the same way a noticeable diminution of sensibility to light should prevent him from obtaining a license. 4. Congenital color blindness is of no moment for guiding an automobile. 5. The following diseases of the eye shall exclude the applicant from license: Ptosis, paralysis of the eye muscles, notable disturbance of the mobility of the pupil, aphakia and, exceptionally, external inflammations. 6. The wearing of protective spectacles, preferably glass, is to be recommended.—*Jour. A. M. A.*

## NEWS ITEMS.

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. G. Oram Ring of Philadelphia is in Europe.

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Dr. Charles S. May and Mrs. May of New York are in Europe.

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Dr. John H. Claiborne and Mrs. Claiborne are now in Europe.

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Dr. Robert Randolph of Baltimore recently visited the canal zone.

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Dr. J. R. Nichols has been appointed oculist to the Austin (Tex.) Confederation.

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Dr. George E. de Schweinitz of Philadelphia has returned from an European trip.

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Dr. R. A. Reeves of Toronto was recently elected president of the Toronto Academy of Medicine.

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Dr. James B. Spencer, an ophthalmologist of Wellston, Ohio, died in that city, June 24, aged fifty-four.

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Dr. F. W. Broderick of Sterling, Ill., is in New York for two months' Neurological work at the Neurological Institute.

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Dr. Francis Lane of Chicago, recently aided the "Cubs" by relieving serious powder burns in Umpire Owen's eye.

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Dr. John B. Ellis of Chicago, who was recently operated upon for appendicitis at the Henrotin Hospital in that city, has entirely recovered.

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Dr. John S. Trontman, an ophthalmologist of Paducah, Ky., died July 30, of cerebral hemorrhage, in the Western State Hospital in Hopkinsville.

Dr. Alexander McConachie of Baltimore has been elected president of the Board of Directors of the Franklin Square Hospital.

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Dr. Abram B. Williams, who for many years practiced his specialty, ophthalmology, in St. Louis, died recently at his home in Bedford, Ind., aged 77.

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Dr. Andrew W. Prout, who has served as assistant to Dr. John E. Brown of Columbus, Ohio, for three years, has returned from a period of study in Vienna and will hereafter be associated with Dr. Brown.

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At the recent annual meeting of the Minnesota State Medical Association, Dr. Thomas McDavitt of St. Paul was re-elected secretary, and also was elected to serve as a delegate to the American Medical Association.

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Dr. A. B. Middleton of Pontiac, Ill., has been appointed to the faculty of the American Medical College, the medical department of the National University at St. Louis, Mo. His work will be chiefly upon the pathology of the eye.

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An epidemic of trachoma is said to be spreading in the State Training School for Girls at Albany, N. Y. As far as known, a girl who had previously been under treatment for the diseases for a year, was the source of the infection.

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## BOOK NOTICES.

THE EYE AND SPECTACLES (Das Auge und die Brille. By M. Von Rohr of the optical manufactory of Carl Zeiss. Published by G. B. Teubner, Leipzig, Germany. Price 30 cents.

THE PITUITARY BODY AND ITS DISORDERS, (Clinical States Produced by Disorders of the Hypophysio Cerebri, by Harvey Cushing, M. D., Associate Professor of Surgery in John Hopkins University. An amplification of the Harvey lecture for December, 1910, 319 illustrations, 341 pages, published by J. B. Lippincott Company, Philadelphia and London. Price \$4.00.



## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Rich'd S. Pattillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Ills. Med.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) Wm. H. Wilder (Inf.) Wm. A. Phillips (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. A. Young (Inf.) N. A. Young (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) E. J. Gardner (E. E. N. T.) J. B. Loring (P. & S.) Casey Wood (St. Luke's) T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (P. & S.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	W. Allen Barr (C.C.S.)	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street. E. E. N. T.: Chicago Eye, Ear, Nose and Throat Clinic, Washington Franklin Streets. Clinics all day.	County: Cook County Hospital, W. Harrison and Honor Streets. Ills. Med.: Illinois Medical College, 182 Washington Blvd. Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue. P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street. N. W. U.: Northwestern University, 2431 Dearborn Street.	Rush: Rush Medical College, W. Harrison and Wood Streets. St. Luke's: St. Luke's Hospital, 1410 Indiana Avenue.
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# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

Vol. XXI

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No. 10, New Series

## ORIGINAL ARTICLES.

### BURNS OF THE EYEBALL FROM THE CONTENTS OF SO-CALLED "WATER-CORE" GOLF BALLS.

By CASEY A. WOOD, M. D.

CHICAGO.

That the resiliency and "carry" of golf balls may be increased, many devices have been employed. Among them is the winding of rubber ribbons or strands about cores that differ materially from the body of the ball. Among these are bags filled with air, with water and with solutions of various kinds. At first (probably as an experiment) some cores were of pure water, but more recently "acid" and other heavier fluids have been employed, on account of their resilient qualities, their weight and their effect on the rubber and other constituents of the golf ball. Whatever their character there can be no doubt about the highly cauterant quality of most or all of these solutions.

The cores of golf balls, whatever their constituents, are surrounded by machine-wound ribbons or other material and thereby subjected to great pressure. It follows that when burst or cut open any fluid they contain is expelled, sometimes with explosive force and noise, to a considerable distance. These preliminary statements will explain the following accident:

On the evening of Sept. 7th, 1912, I saw C. K., aged 26, who a few hours before cut into a golf ball of unknown manufacture "to see how it was made." Without warning a thickish fluid squirted into his face and left eye. There was immediate pain in the eye, a burning sensation about the orbit and the lids were soon swollen shut. Cold compresses and atropia were ordered by Dr. F. P. Patton of Glencoe, Illinois, and the patient advised to consult me.

The lids were oedematous and discolored. Irritated patches, evidently burns, were noticed over the whole face and the patient showed similar areas on his hands—as well as discolored spots on his clothing—from the ejected fluid.

Both the ocular and palpebral conjunctivas were swollen and hyperemic; in two situations there were subconjunctival hemorrhages. There was a marked ciliary and scleral congestion. About two-thirds of the cornea was covered by a thin, whitish eschar. On the third day, when the patient returned to his home in Milwaukee, vision was reduced to finger counting; there was a beginning slough of the burned area at the upper-inner quadrant of the corneal burn.

This is the first case of the kind that has come under my immediate observation, but my associate, Dr. Paul Guilford, knows of another, and on inquiry I find that other colleagues in Chicago have had several others. Moreover, Dr. Thomas C. Phillips of Milwaukee, who subsequently treated the case just detailed, writes me that he had under his care a similar case—“a boy, aged 12, at Kenosha last spring ran a knife into the ‘insides’ of a golf ball. A fluid, under pressure, squirted into both eyes, causing ulceration of the corneæ; some flew by the boy, struck a little girl in the face and burned her face. The boy ultimately made a very good recovery. Dr. Jorgenson of Kenosha, who referred the case, said that an examination of the fluid showed it to be a solution of zinc chloride. When I was at the seashore this summer I read of another case happening near Boston.”

Later Dr. Phillips writes me that the inflammation and opacity of the cornea have nearly gone and that our patient's vision is 6/12 minus.

In view of the foregoing facts it is manifestly our duty both as golfers and practical ophthalmologists to discourage the use of so-called “water-core” balls. The public are ignorant of the dangerous character of their contents, and although their explosion under ordinary conditions of use is rare, yet it is not an uncommon event that persons, impelled by curiosity, cut into them with such disastrous results as have just been described. Furthermore, as a matter of fact, air and solid-core balls, such, for example, as those made by Spalding Brothers, are quite as effective and enjoy even a greater measure of popularity than the dangerous fluid-core balls.

## CURSORY NOTES OF AN OPHTHALMIC PILGRIMAGE.

By TEMPLE SMITH, F. R. C. S. E., D. O. OXON.

QUEENSLAND, AUSTRALIA.

The writer has recently made a tour of various centers of ophthalmic work in America, England and India. In this article, written on the invitation of the Editor of this Journal, he has endeavored to give some impressions that he has gained of the trend of practice rather than a detailed account of the different methods in vogue in the various clinics he visited. To his great regret, owing to engagements necessitating his presence in England earlier than he had anticipated, and also to indisposition, he was unable to do anything like justice to American clinics. His loss in this way was considerable, but it is hoped that the omission may be rectified on a future occasion, as he met with much kindness and open-hearted generosity during his short stay.

One impression gained was that the further East one went the more conservative were the methods employed: the further West, the more advanced. In Seattle, Wurdeman was advocating the intracapsular operation for extraction of cataract as the one of election, and practising it. In New York, Weeks would not entertain it; while in Chicago, a judicious eclecticism was employed. This was early in 1911. La Grange's operation for glaucoma seemed to be the one of choice both East and West. No mention was heard of trephining or of Herbert's sclerotomy; but the principle of the filtering cicatrix seemed to have taken firm root. Casey Wood, of Chicago, at times removed a piece of the posterior lip of the incision in preference to the anterior. He prepares the eye for cataract extraction by filling the conjunctival sac with White's mercurial ointment and tying it up till next day, the day of operation. In Chicago, it would appear that partial tenotomies are no longer in favor: the lesson taught, however, by the advocates of this measure, that of neat operating and the use of fine instruments, has not been lost. In cases where a small effect only is wanted a  $\frac{1}{8}$ -inch vertical incision is made over the tendon, which is pulled up with fine forceps, a hole snipped in the middle, and the remainder of the tendon divided above and below, some of the attachments being severed as well if necessary.

Considerable attention was being devoted to the association

between eye troubles and nasal diseases. MacWinnie, of Seattle, being an enthusiastic worker in this field. One could not help being struck by the thorough and systematic way in which patients are examined. As well as the refraction the fields, the state of muscle balance, the intra-nasal condition and every function having the least bearing on the eye is investigated and the results charted. The equipment too of the "offices" is very complete, every variety of time and labor-saving appliance being installed: the various forms of phorometer and optometer as well as the electric ophthalmoscope are very popular.

To his great regret, the writer had to omit Philadelphia, Boston and Baltimore from his itinerary, for the reasons above noted, although he received a most cordial invitation from Dr. Webster Fox of the former city. In New York he visited the Eye Hospital, and had the pleasure of seeing Dr. Weeks do an extraction and also a La Grange operation for glaucoma. He has given up the simple extraction and now does an iridectomy. Atropine is instilled after operation, nothing before; sometimes a preliminary iridectomy is done. Instruments are all boiled except the knives, which are immersed in boiling water for a few minutes. All are then placed in 95 per cent alcohol and rinsed in boric acid lotion. For strabismus advancement is not done, but tenectomy and attachment of the shortened tendon to its stump, silk stitches being used.

For trachoma, in the western districts at any rate, the treatment was to incise and express the granules, and then to rub the conjunctiva vigorously with sol. hydrarg. perchlor. 1 in 500, by means of a tooth brush or sandpaper.

Dr. Wurdeman, of Seattle, has great faith in 50 per cent argyrol, and fills the conjunctival sac with it after cataract extraction, in gonorrheal inflammation and in all cases of injury. Dr. Casey Wood has not the same confidence in the drug, and prefers to rely on White's mercurial ointment. The latter does not boil instruments, but immerses them in a solution consisting of 70 per cent carbolic and 30 per cent glycerine and then in another of 70 per cent alcohol and 30 per cent of ( $\frac{1}{2}$  per cent) carbolic acid. Both wear a cap and gauze bandage on the mouth while operating.

Dr. Weeks, of New York, has the patient covered with a large sterile sheet with hole in it for the face. The eyelashes are cut short, and the lids everted and scrubbed with boric lotion and freely flushed with saline solution. In cataract extrac-



tion he operates by focussed electric light; the speculum is raised by an assistant, fixation forceps hold the conjunctiva and are locked until the lens is ready for delivery. He makes a limbal incision and a conjunctival flap. Free irrigation of the anterior chamber is done with a short glass nozzle and a rubber ball. The capsule is removed by capsule forceps if possible. The corner of the eye is filled with ointment and covered with ointment-smeared gauze, the hollows filled with dry wool, the other eye covered as well, and both closed with Ring's mask. The operator does not wear a face mask.

For glaucoma, Dr. Weeks injects cocaine (4 per cent cocaine and 1 per cent holocaine) under the conjunctiva on both sides of the incision; he does not believe that an incision wider than five or six millimeters is either desirable or safe, and consequently does only a small iridectomy and removes a notch from the anterior lip after the manner of La Grange.

For detachment of the retina he puts a suture in the conjunctiva and superficial sclera, and draws the eye strongly over to one side, he then makes several punctures as far behind the equator as possible, but has not seen any good permanent results from this or any other treatment.

At the Royal London Ophthalmic Hospital, Moorfields, London, there is great uniformity in the methods employed by the twelve surgeons of that institution. With one or possibly two exceptions no cap or face mask is used; operating is all done by artificial light, a condensing lamp being employed. Spirit soap is rubbed on the closed lids with a cotton swab; then the lids are everted and freely flushed with boric lotion or saline. All instruments are boiled. The simple operation for cataract is done a good deal, often being followed by a button-hole iridectomy (peripheral). Mr. Devereux Marshall opens the capsule with the point of the knife during its transit across the chamber. Mr. Treacher Collins uses his own pattern capsule forceps, with concave blades. No instillation for the most part is made either before or after the operation. Irrigation of the anterior chamber is not entertained at all, though London has one convert to the method in Mr. Bishop Harman. Needling is done with a single needle under a strongly condensed light.

For trachoma, Mr. Treacher Collins advises expression with Grady's or other pattern forceps, and the rubbing in of 1 per cent hydrarg. perchloride in equal parts of glycerine and

water, with the subsequent daily use of 11 in 4000 perchloride lotion; copper citrate ointment, 5 per cent, is also used. As regards radium in trachoma, he gives a five minutes' application once a week, then waits a week or until the reaction has subsided, and only regards it as an exciter of leucocytosis, and not as having any special selective action; the same may possibly be said of carbon dioxide snow, which has been used to a considerable extent by Mr. Leonard Mitchell, lately house-surgeon there, and who thinks well of it in this connection. The writer has used it in a number of cases, but did not see that it had any advantage over other irritants, while it was quite painful in application, but his experience of it has not been large.

Great attention is paid here to direct ophthalmoscopy, the Morton instrument being universally used; much stress is laid on the presence of "K. P.," as indicating cyclitic affection, the small corneal loupes of ten diameters being used under focal illumination.

Vaccine therapy is here being used largely, the vaccines being made in the pathological laboratory, autogenous vaccines being cultivated where necessary. Very small doses of tuberculin are used, as small a dose as .00005 mg. being the initial one, and this is very slowly increased at intervals of about ten days. The Wassermann and Von Pirquet reactions are used extensively, and Salvarsan is employed in syphilis. The tradition of thorough pathological work left by such workers as Lawford, Collins and Coats is well maintained; there is a separate department of bacteriology.

On the clinical side, refractions are done by the clinical assistants, and very careful attention is paid to direct ophthalmoscopy by the staff. Electricity is the lighting power used—with frosted open lamps, and the illumination is not very bright. The more modern instruments, such as the Marple Morton electric ophthalmoscope, the compound corneal microscope, Thorner's ophthalmoscope, etc., are not in use. There is a Sutcliffe's keratometer and a Maddox scale in a side room, but the muscle balance is not taken as a matter of routine, as in America. Perimetry is done a good deal, MacHardy's machine being the one installed, but the Bjerrum's test, either in the original form or with Priestley Smith's scotometer does not seem to be much employed.

As regards simple glaucoma, at the time the writer was

visiting there, Herbert's sclerotomy was being done by every member of the staff, practically to the exclusion of everything else; satisfaction was expressed at the immediate results. So far as was observed, La Grange's operation and trephining were not being tried. Indeed, during conversation with one member of the staff, he expressed the opinion that the former procedure was too dangerous.

A good deal of time is given by members of the staff to clinical teaching, especially with out-patients and in the dark-room; every courtesy is shown to visitors and every facility provided for observation and instruction. It is a very well organized clinic, with an immense amount of clinical material available.

In Mr. Priestley Smith's clinic in Birmingham, Mr. Allport had for some time been doing Herbert's original "wedge" operation for glaucoma and was very well satisfied with it. Herbert's "small flap" operation was introduced by its author, not that the former operation was unsatisfactory, but on account of its difficulty of performance. It will be seen therefore that the principle of the filtering cicatrix appears to have established itself in England as well as in America.

The writer had the advantage of seeing Col. Herbert do his latest modification of the small flap operation several times on the cadaver at Oxford. He now, after making the initial opening with the narrow keratome, uses Harman's scissors, pulling up the conjunctiva with forceps through the V of the scissors, so that the conjunctiva will slide at the completion of the procedure, and make the opening valvular. Many operators whom the writer saw did not seem to keep sufficiently in mind the importance of making the incisions subconjunctival, whether effected by knife or scissors. Herbert very rightly makes this an essential feature of his operation.

At Oxford, the Eye Infirmary draws from a large rural population, where cases can be kept in touch with for years, and consequently very interesting cases can be produced on occasion. Under the influence of Mr. R. W. Doyne, the University Reader in Ophthalmology, a very able observer and clinical teacher, great attention is paid to fundus work, while pathology is by no means neglected. Mr. Doyne holds very strong views on the value of science in corneal inflammations, the increased lymph flow and lymphocytosis which are induced improving the nutrition of the cornea. Many people would

probably prefer to use diinin in combination with atropine for this purpose, but from a long clinical experience Mr. Doyne is convinced of the great value of eserine in, for instance, septic ulcer and neuropathic keratitis. In the former condition, in which the tension is usually raised, he holds that it is better to have iritis and iritic adhesions, to be dealt with later, than to lose all transparent cornea, as so frequently obtains, he contends, with other treatment. Mr. Adams, of Oxford, is also convinced of its value. The latter speaks well of methylene blue in trachoma. After cocaine, a 3 per cent solution of (medicinal) methylene blue is rubbed into the lids three times a week, and a 1 in 1000 solution used at home. Vaccine therapy is employed and intravenous injection of salvarsan. For ophthalmia neonatorum they use a boric acid cleansing lotion and 25 per cent argyrol every two hours; nothing else and no silver nitrate. The Schiotz tonometer is used for taking tensions.

At the Royal Infirmary, Edinburgh, trephining is being extensively tried for glaucoma. The writer did not see it done, so cannot say whether Fergus' method of combining it with cyclodialysis is followed or that of Elliot, who studiously avoids the ciliary region, and opens the anterior chamber very anteriorly partly through the cornea.

Phlyctenular keratitis is here regarded as generally tuberculous in origin; in fact, it goes by the name of "strumous" keratitis. If Von Pirquet's test is positive in an obstinate case tuberculin is used.

Dr. J. V. Patterson gives a series of very interesting and valuable lantern lectures on the pathology of the eye to post-graduates in September each year; these are well worth attending.

The writer had intended to visit the German and French clinics, but having in the meantime received an invitation from Lt.-Col. Elliott, I. M. S., to visit his hospital in Madras, he determined to substitute for such desultory visiting—interesting though it would have been—three months' routine work in India. A detailed account of the visit has already appeared in another place, but a few words here will not be out of place to complete this account.

The Government Ophthalmic Hospital, Madras, is probably one of the largest of eye hospitals, having already 144 beds fully occupied, and will shortly have 180; it is certainly one

of the best-equipped both in modern instruments of precision and in general organization.

In cataract, the combined operation is always done and the incision is made in the limbus without a conjunctival flap. The capsule is opened by a needle passed in at the limbus before the incision is made, and very free use is made of irrigation of the anterior chamber.

The intracapsular operation is taboo in Madras, as Col. Elliot, having done it in several hundred cases, after visiting Col. Smith's hospital at Amritsar, felt bound to discard it on account of the increased danger to the patient, as shown by a careful comparison of statistics. The same conclusions have, we believe, been come to by the other two Presidency Surgeons, both also men of large experience, Cols. Herbert and Maynard, the former lately of Bombay and the latter of Calcutta. The writer felt that since in "white" practice (where cataract work is comparatively limited)—or for that matter in any—one cannot adopt a procedure which offers *any* increased risk of disaster, he could not afford to spend his limited time in traveling far to witness an operation of merely (for him) academical interest and which he was never likely to perform on his patients—interesting though such a visit would have been. While in Madras, owing to Col. Elliott's kindness, one had the opportunity of performing between two and three hundred operations of varying nature. Included among them were over a hundred cataracts and forty odd operations for glaucoma, mainly trephining.

Trephining is done for both acute and chronic glaucoma. A large flap of conjunctiva is dissected up, well over the cornea, whose superficial layers are, if necessary, split for a millimeter or so. The trephine disc consists in part of corneal tissue; if the iris bulges through the hole a buttonhole iridectomy is done, simply to prevent subsequent prolapsis. The results are eminently satisfactory.

For lachrymal trouble excision of the sac is always done, conservative treatment not being suited to the conditions of Indian hospital practice. The writer performed it some fourteen times, and found that if done by a definite method it is not so difficult as it at first appears. It is always done under general anaesthesia and the nasal duct is cauterised with a spindle-shaped instrument.

Needling for after-cataract, though not often called for, is



done with two needles, but never earlier than six weeks after the extraction.

The electric ophthalmoscope and all the modern instruments are in routine use.

Work is done on scientific lines, and particularly interesting fundus cases are to be seen, congenital abnormalities being very frequently met with. Visitors are made very welcome in the Madras clinic, and if properly accredited are given every facility not only for seeing but for making themselves familiar with any procedure in which they are interested by performing it themselves. The amount of clinic material is large, the organization excellent and the practice of the hospital is worth coming far to see.

\*Ophthalmoscope, April, 1912.

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## REPORT OF A CASE OF MELANOTIC SARCOMA OF THE CILIARY BODY.

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WACO, TEXAS.

Melanotic sarcoma of the uveal tract is rare, the most usual situation being in the chorioid. The ciliary body is attacked much less frequently, only 1-10 so often, according to Bland-Sutton. Those of the iris are exceedingly rare. Sarcoma of the uveal tract is generally seen between the ages of 40 and 60, though it has been observed as early as the 2d and as late as the 84th year.

Pathologically they may be round cell, spindle cell or mixed. The round cell and the very vascular ones are the most highly malignant. Local recurrence after thorough removal is rarely observed, only in 2½ per cent, according to de Schweinitz. Metastases to distant organs, generally the liver, but also the lungs, spleen, intestines, bones, etc., occur in from 40 to 75 per cent of cases and prove fatal. The walls of the blood vessels to the sarcoma are formed by endothelium, or perhaps by the tumor cells themselves, so that the sarcoma cells are easily detached and carried away by the circulation to distant parts. Left alone the growth will extend along the vascular and nervous foramina to the outside of the eyeball and involve the surrounding structures. The brain and the lymph glands adjacent to the orbit are however rarely invaded.

The prognosis, from what has been said, is seen to be extremely grave, early and radical removal by no means securing immunity from further and more serious involvement. There is but one treatment—the earliest possible removal of the eye. In case of periorbital involvement, complete exenteration of the orbit is in order. Secondary involvements make the case hopeless. Bloodgood, writing in *Progressive Medicine* about melanotic sarcoma arising from pigmented moles, says that in his rather extensive experience there has been a mortality of 100 per cent. The duration of life of patients suffering from melanotic sarcoma of the uveal tract rarely extends beyond 3 years. However, cases are known in which patients were alive and well after 5, 6, 8, 9, 16, and 18 years (Bland-Sutton). Recurrences have occurred after 11 years.

We have recently operated upon a case of melanotic sarcoma of the ciliary body, the following being a history of the case: Dr. H. S., age 38, came to us July 24, 1911, with the history of having been assisting in building a house and having become overheated, followed the next morning, July 17, 1911, at 2 a. m., by an intense pain in the right temporal and frontal regions, not eased by large doses of morphine. This pain continued with some abatement for about a week, when he came to see us. Examination showed a mild iritis, with considerable conjunctival injection and some chemosis, and a vitreous practically full of an exudate that showed white by lateral illumination. Atropine, dionin, hot applications, etc., completely relieved his pain and improvement began. I might add that the tension of the eye was normal. He could see only in the lower 1/3 of the field. His left eye had been injured by a piece of steel 10 years before penetrating the cornea and producing traumatic cataract, and there was an indefinite history of injury to the right eye at the same time. Such a history naturally excited suspicion of sympathetic trouble. Specific infection was denied. Tumor growth was thought of and held in reserve as a possibility. About this time I decided to go to Chicago for post-graduate work. The doctor, learning of my intentions, decided to go with me and have his membranous cataract in the left eye disced. This Dr. H. W. Woodruff did with success. An X-ray at the time showed no steel in either eye. The patient returned to Texas and with the aid of glasses began to follow his profession. At times his right eye would become somewhat irritable, but never severely. The vitreous exudate was being

nicely absorbed, his vision in that eye with plus 1.00 S. being 20/100, but requiring stronger lenses for near.

After quite a while, on March 9, 1912, he presented himself again with a condition similar to his first attack, only with no vitreous exudate, but with considerable iritis. A colleague in Dallas had examined him a few days previously and had ordered atropine, dionin and biniclide of mercury, the latter two drugs the patient had not, however, made use of. A brownish growth could be seen through the dilated pupil occupying the lower third of the fundus behind the iris, and showing very prettily the markings of the ciliary processes upon its surface. At the same time one could easily discern its growth into the anterior chamber between the iris and the cornea, separating the ciliary body from its scleral attachment and deepening the lower part of the anterior chamber very perceptibly. Hence melanotic sarcoma of the ciliary body was diagnosed and immediate operation advised, upon which we were told that the Dallas doctor had expressed his suspicion of a tumor being in the eye. Our diagnosis was confirmed by a colleague in this city, after which we removed the offending eye. Gross inspection of the sectioned eye, with microscopic examination of the same, amply confirmed our diagnosis. The specimen shows a mixed round and spindle cell sarcoma, richly pigmented, with the round cells predominating. The tumor is also very vascular, conditions that certainly do not offer a very flattering prognosis.

## REPORTS OF SOCIETIES

### AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARGNOLOGY, NIAGARA FALLS, CANADA, AUG. 20, 21, 22, 1912.

(GEORGE F. SUTKER, M. D., PRESIDENT.)

#### **"Some Ethical Problems Confronting the Eye, Ear, Nose and Throat Specialist."**

Dr. Linn Emerson, of Orange, N. J., said that parents seeking for their son a remunerative occupation should look elsewhere than to the learned professions. He suggested that practitioners of the old professions might simplify professional life by going in frankly for ideals of public service, with a reasonable pension, and that probably, as a matter of fact, there are more furtive socialists among professional men than professed ones among working men. Ethics and morality are largely chronologic and geographic. The machine politics of the last two or three decades are now censured by all good citizens, while the immoral conduct of the Mormons, the Turks or the patriarchs would soon land them in jail in the state of New Jersey. So the ethics of medical practice have changed in the past forty years, and even now there is a marked difference in the ethical standards of different localities, notably the city and the country, the East and the West. The competitive spirit and the attempt to make the practice of medicine "pay" is the principal cause of the necessity of a medical code of ethics, and this is fostered by the low standard of medical education prevalent in this country, giving us, as a result, a large number of uneducated, ill-trained practitioners. The man possessed of a college degree before entering the study of medicine is more likely to be imbued with the ideals of public service than one recruited from the ranks of the "butcher, the baker and the candlestick maker."

Dispensary and hospital abuse is cited as another of the reasons why the practice of medicine does not pay. Hospital boards are made up of laymen and eminent members of the profession whose sole interest is to make the institution great. Patients are necessary, and the fact that they are unworthy of free treatment is a matter of little moment. As only quacks and eminent members of the profession are permitted to advertise, it is not surprising that the under dog says that the code is a fence erected by the big fellows to keep the little fellows out.

Every member of the profession who has "arrived" is urged to keep fresh in mind his early struggles and hardships. The nationalization of medicine is suggested as a possible outcome of the doctors' revolt against the Lloyd-George insurance act. The specialist should be governed by the same code as that governing the general practitioner, but the first question a man should ask himself is, "Am I a real specialist, competent, and what I represent myself to be?" The essayist decried the taking up of a specialty after years of general practice, after a man has passed the years of general receptivity and enthusiasm.

The criticism most frequently heard of the specialist is that he oversteps himself and treats the patient for some condition outside his special field. A referred case should always be reported upon to the physician sending it. In rare cases it is necessary to deceive the patient as to his true condition, when it is wise to protect oneself by informing some member of the patient's family as to the true state of affairs.

The division of fees is another attempt to make the practice of medicine pay, but it would seem that every fair-minded man would appreciate the chain of possible evils that might follow this reprehensible practice, which, nevertheless, exists to a considerable degree. The patient's best interest must be made the paramount issue at all times.

*DISCUSSION.* Dr. J. O. McReynolds, of Dallas, Texas, said that the full force of the influence of the professional man of today should be thrown in behalf of those who are to follow. The highest culture for every physician should be encouraged, and the altruistic spirit stimulated. The specialist is essentially a consultant, and when he has discharged the special service for which he has been called, the patient should immediately be referred back to his family physician for every particle of subsequent attention that can thus be rendered. He is thus saved unnecessary expense and detention from home; the family physician retains a closer relation to the patient, and the specialist is relieved of all the details and left to develop the talents that will make him useful to his fellow man.

Dr. J. F. Barnhill, of Indianapolis, said that many of meagre undergraduate and almost no postgraduate study are practicing some specialty, and suggested that there be some means adopted, such as is usual in undergraduate work, whereby a man must show some qualification to do this special work: this society should insist on post graduate schools laying down a plan of



entrance, study, etc., before any kind of a certificate is given to do any kind of special work. The specialist must show qualification as to why he exists. The post graduate schools must take up a curriculum that is well worth while, and the students must be passed upon by some board before they can practice a specialty.

The family physician should be reimbursed, but by whom? The trouble is with the family physician himself, who encourages the belief that he ought not to be paid for going to the specialist, because he believes he is going to get something out of it. It should be stated clearly to the patient just what he is to be paid.

Dr. Geo. Keiper, of La Fayette, Ind., said that there has crept into the specialties a large amount of evil, because of the fact that the men have failed to keep to their ideals so far as education is concerned. It is said that not more than 20 per cent of eye, ear, nose and throat men read the journals. If the professional man feels that he is here for the purpose of earning a living, he is putting himself on the lowest possible plane. He must feel, rather, that he is here for the benefit of those who will seek his help; the living will then take care of itself. He thinks it is better to say nothing than to mislead a patient as to his true condition. The Great Physician said that if we know the truth the truth will make us free.

Dr. H. B. Young, of Burlington, Ia., deplored the fact that the teaching of ethics is not made more important in the curricula of the colleges. This is sometimes spoken of as a matter of conscience, but every man's conscience depends upon what he has been taught as right and wrong in the conditions in which he finds himself. The country specialist does not have so many operations brought to him as his confrere of the city, because he is not able to pay so high a commission as the latter.

Dr. M. Goldstein, of St. Louis, thought it a deplorable fact that a body of men representing so high a standard as that of the medical profession are so impotent in the development of affairs that will bring about the enactment of laws that will protect the interests of their own profession. Some action should be taken by every one of the national societies whereby the practice of a specialty can be regulated and such practitioners properly licensed. He should have certain qualifications before being permitted to practice a specialty in a community. The suggestion was made that a committee be formed from all these

societies to formulate a plan by which this practice might be regulated. Regarding the matter of fee-splitting, the family practitioner who leaves his practice to bring a patient to the specialist is entitled to a consideration; he is responsible for the after care of the patient and it is to the interest of the patient that the physician is present and sees the first dressing; but this consideration must be distinctly understood between the specialist, the general practitioner and the patient. Then everything is fair and above board.

Dr. Edward Jackson, of Denver, while agreeing that in certain phases the questions of ethics and morality are matters of time and place, insisted that the general principles are universal. If the patient knows just what he is paying and what for, that is all that is necessary. A suggestion was made that in sending the bill three checks should be requested: one for the specialist, one for the anaesthetist and for the family physician who took his time to bring the case. Fee splitting would never have been abused if the patient had always been informed of just what became of the fee.

It is possible something along the line of recognition of men worthy to do special work such as is given by the Royal Society of Great Britain may be brought about, but first it must be insisted upon that practitioners recognize the fact that men who have pursued the undergraduate work are not prepared to do work in certain lines, and it is not to be left to the individual to decide how much preparation he must make, but to some one who knows that specialty.

Dr. H. G. Sherman, of Cleveland, O., said that every man must recognize whether honesty is the best policy in the long run, or policy the best principle in the short run. The general practitioner shares the responsibility if he has charge of the after treatment and gets no glory. Some understanding should be had always as to his compensation.

Prof. Anton Elschmig, of Prague, Austria, the guest of the society, stated that sometimes the same conditions existed in his country. He believed the remedy lies in the organization of medical men into one body. With him the house physician is invited to look after the after treatment, and for this he is paid, not by the surgeon, but by the patient himself.

Mr. Heath, of London, said that the diversity of medical education in this country was at the root of much of the existing evil, and until every man must pass a certain standard there

would be difficulty of this kind. The man who teaches must not do the licensing. The training must be in one school and the examination in another.

Dr. A. R. Reeve, of Toronto, said that the sentiment in this matter north of the Lakes was crystallized a few months ago into two resolutions adopted by the Academy of Medicine of Toronto, numbering 350 of the leading practitioners, to the effect that it is unprofessional to offer any consideration or inducement of any kind to secure a patient or an operation, and that where two or more practitioners are engaged on a case, no disposition of the respective fees shall be made without the knowledge and consent of the patient. It was a relief to everybody when these resolutions were put on the statute book of the Academy, for the right thing had been done in the right way.

Dr. Reeves believes a cataract patient should always be informed that his vision will not be as good even after a successful operation as it was before the affection. He examines the bridge of the nose, and if this is low and the field of vision 75 per cent of the whole field, the patient will not gain much by the operation.

#### **"A Modification of the Serum Treatment for Hemorrhage."**

Drs. F. C. Busch and G. H. A. Clowes, of Buffalo, in a preliminary note on "A Modification of the Serum Treatment for Hemorrhage," said that because of the difficulty of always being able to secure an adequate supply of fresh serum quickly, it had occurred to them that a process had already been successfully employed in the precipitation of yeast enzymes which might be used for the preparation of blood serum in a more easily available form as a soluble powder. As a precipitant for this purpose a mixture of acetone and ether has been used, which, when mixed with fresh serum, results in the formation of a precipitate which after evaporation of the last traces of precipitant remains on the filter as a very fine white powder freely soluble in water. This powder is sterile, permanent and, as far as can be concluded from laboratory experiment and clinical experience, may be used with the same expectation of therapeutic success as the original fresh serum. It has been used in the dry form for local application to bleeding surfaces, and in the form of solution in sterile water for subcutaneous injection.

*DISCUSSION.* Dr. H. W. Hinkel of Buffalo, detailed

several cases in which the use of the powder had proven of excellent service in his practice.

Dr. Wm. F. Mittendorf of New York City, thought such a remedy would be most effective in conjunctival hemorrhages of the new-born.

Dr. A. G. Bennett, of Buffalo, said he had seen one such case treated with the greatest satisfaction with this remedy. All the usual remedies had been tried without effect; the blood poured from the eyes and the patient was becoming exsanguinated. Dr. Busch was called and administered this remedy with the happiest results, and the child pulled through in good shape.

Dr. Harry S. Gradle, of Chicago, described a method of Prof. Elschmig, whereby the serum is evaporated without any evacuant at  $37\frac{1}{2}$  degrees. The precipitation is in a solid form in which it will remain indefinitely, and it retains all the normal properties of the serum, some of which are lost otherwise, and can be sterilized at 100 degs. C.

Dr. Wendell Reber, of Philadelphia, reported three cases of fatal conjunctival hemorrhage in the new-born, and said if this remedy was applicable to such cases it is a valuable addition to the present armamentarium. It would also be of value in post-operative treatment of cataract and glaucoma.

Dr. George F. Suker delivered the President's address, entitled the "**Various Phases of Migraine.**"

"**Sympathetic Ophthalmia.**"

"Sympathetic Ophthalmia" was the title of the address in Ophthalmology by Prof. Anton Elschmig, Prague, Austria. The theories advanced as the cause of this condition in the past eighty years were reviewed, and the flaws in each pointed out and demonstrated by lantern slides, before taking up his own theory, work on which has dated back over a period of three years. If one introduces into an animal intravenously, subcutaneously or intraperitoneally the tissues of another species, as blood, serum or another organ, it is resorbed, and as a rule, in the form of an antigen. Supposing blood were injected, the antigenic resorbed blood corpuscles produce a reaction product in the blood of the animal injected, an antibody. In the case of blood corpuscles this antibody is termed a hemolysin and is specific for the blood of the species used. In other words, the blood serum of a rabbit which has been repeatedly injected with the blood of cattle, contains a hemolysin which is only specific for the blood corpuscles of cattle. In a test tube the blood of

cattle will be dissolved by the blood serum of a rabbit so treated. It is to be emphasized that in this case the blood serum is specific only for the blood corpuscles of cattle—it is animal specific.

By the method of complement fixation (that on which the Wassermann reaction is based), the speaker has been able to show that an antigenic *resorption* takes place also when a so-called antigen is injected into the eye of an animal, as well as by subcutaneous, intravenous or intraperitoneal injections. He has further established the fact that through intravenous or intraperitoneal injections of emulsions of uvea and pigment epithelium a specific antibody is produced in the animal injected which is specific not only for the uvea of animals of the same species as the animal from whose uvea the emulsion was made, but also for the uvea of other species, and that these injections are poisonous for all species of animals. He has further shown that guinea-pig uvea is toxic for guinea-pigs and rabbits' uvea for rabbits, forming in the treated animals analogous antibodies, so-called auto-antibodies, which are as uvea specific as they would have been had the uvea of another species been injected. He has chemically isolated the pigment from the uvea used for injections, and has learned that the uveal pigment has a toxic action in both the same and in different species, that antibodies are formed which are specific for eye pigment in general and for uveal emulsions.

Antibody formation is the basis of the so-called anaphylaxis. If one injects into a guinea-pig a small amount of horse serum, the guinea-pig reacts to the horse serum injected by forming specific antibodies. When this process of antibody formation is completed some twenty days later, if horse serum is again injected intravenously, the animal exhibits symptoms of shock, which has been termed anaphylaxis, and dies; while the same quantity in a guinea-pig that has not been previously injected would produce no appreciable effect. Besides the general anaphylaxis, there is a local one. The local reaction after tuberculin injection is also a form of anaphylaxis. It has been demonstrated that every injection of the serum of a foreign species into the eye of an animal is followed by an intra-ocular inflammation after the usual incubation period. If, however, the guinea-pig is immunized with the serum of cattle, for example, and later cattle serum is injected into the eye, a severe iritis immediately results.



The most recent scientific investigations support rather than destroy the theory which has been brought forward by the author and Bail as explaining the origin of sympathetic ophthalmia. If, through an injury, whether directly through the injury itself, the foreign body or the introduced micro-organisms, an eye becomes inflamed and uveal tissue is damaged, the uveal tissue and pigment is resorbed in antigenic form and antibodies are set free in the blood. These antibodies react with the remaining normal uvea of this eye and likewise with the uvea of the second eye, rendering them hypersensitive, or, in other words, sensitizing them. Now just as it has been seen that a condition of anaphylactic shock occurs in the animal that receives a second injection with a serum with which it was previously treated, so in the eyes, and especially in the second, whose uveal tissues have been sensitized, an anaphylactic shock occurs at a later date when even one single uveal cell is destroyed with resorption of its pigment. *This anaphylactic shock is the sympathetic inflammation.*

This preliminary statement suggested by Bail as a working hypothesis, Professor Elschnig has modified, and his position at present is that a definite physical predisposition favors the occurrence of sympathetic inflammation in an individual. Just as an individual by reason of some internal non-bacterial cause, such as gout or diabetes, or by the pathologic substances which are certainly present in the blood serum in these cases may be affected spontaneously less with an iridocyclitis, so may he by reason of a pre-existent constitutional anomaly, or, better, by the accompanying changes in the blood serum, suffer a sympathetic inflammation, provided the uveal tissues have been sensitized by antigenic *resorption* of uvea tissue, damaged by a trauma, intra-ocular tumor or other cause.

If from the cases of spontaneous iridocyclitis are eliminated all those cases giving a positive Wassermann or tuberculin reaction, also those cases in which there is a probability that some bacterial infection such as gonorrhoea, rheumatism, nose and sinus suppuration, diseases of the female sexual organs, diseases of the heart, carcinoma and blood diseases, diabetes, gout, kidney disease, etc., there remains a considerable number in which the cause of the iridocyclitis is not determined. The author several years ago proved that in a majority of these cases an auto-intoxication exists. This condition, while not well under-

stood, implies in the last analysis, a decreased resistance on the part of an individual or of an organ against definite pathological processes or against the products of the normal metabolism. Auto-intoxication or constitutional anomalies, factors in many organic diseases, he holds to be the remaining factors in the origin of sympathetic ophthalmia, if exact examination of the patient does not show other well-known anomalies. The association between the trauma of the first eye, the abnormal constitution or the auto-intoxication and the sympathetic ophthalmia may be a double one. As a result of the constitutional anomaly or auto-intoxication, the eye or the individual may react abnormally to the trauma or infection, just as Gradle has shown that a lymphocytosis occurs in iridocyclitis instead of a leucocytosis, or the uveal albumin and pigment break down in an abnormal manner, circulate in the blood stream or produce antibodies and sensitize the uveas of both eyes. This same constitutional anomaly or auto-intoxication may then be the cause of the breaking forth of a sympathetic inflammation in the sensitized eye. The simple performance of function on the part of the eye in such an individual suffices to bring about an abnormal disturbance in the proteid metabolism leading to destruction of uveal tissue and thus to anaphylactic inflammation.

The theory leads to the supposition that the inflammation is the result of the occurrence of albumin bodies of high molecular weight, perhaps acting like ferments. The origin of sympathetic inflammation in connection with intraocular sarcoma is to be explained in part as the result of the toxic action of the breaking down products of albumin. It seems decisive for the recognition of the theory here presented that the same anatomical picture is obtained from cases of iridocyclitis experimentally produced by the injection into the eye of ferments and albumin bodies of a foreign character as is obtained in sympathetic inflammation.

The appearances in the picture of sympathetic ophthalmia which cannot be explained by the previously mentioned theories are easily understood on applying the anaphylaxis theory. These are:

1. The time interval between the inflammation of the first eye and the sympathetic inflammation of the second eye.
2. If after a long interval of time a sympathetic inflammation arises, a fresh anaphylactic inflammation occurs always in the first eye.

3. This theory explains how sometimes in the second eye there may develop a pronounced sympathetic inflammation a few days after the enucleation of an eye which shows the anatomical changes of the exciting inflammation in an early stage. In this case both eyes are suffering from the same inflammation, but in the second it was not yet sufficiently developed to be clinically manifest. Also, while the source of the production of the antibodies is done away with by the removal of the first eye, sufficient antibodies may remain in the body for the sensitization of the second eye.

4. The theory also shows why the enucleation of the exciting eye has no special effect upon a sympathetic ophthalmia already established.

5. It shows why a sympathetic ophthalmia never follows a panophthalmitis, as here the uvea tissue is totally destroyed, as is the pigment, and cannot give the cause for production of antibodies.

6. The anaphylactic theory explains why neurotomy and neurectomy are of no value as measures to prevent sympathetic inflammation since the formation of antibodies is thereby not interfered with, nor is sensitization prevented.

7. The theory shows that exenteration of the bulb is of equal value with enucleation for the prevention of sympathetic ophthalmia. The removal of uveal tissue is the desideratum.

8. The theory explains those cases of sympathetic ophthalmia after non-perforating wounds, as well as after sarcoma of the uvea which cannot be satisfactorily explained by the mycotic theories. In fact, the frequent occurrence of sympathetic ophthalmia after blunt traumatism, subconjunctival traumatic rupture of the sclera and sarcoma of the chorioid, where there is only a breaking down and not a suppuration of the delicate uveal tissue, is, in the author's opinion, a weighty support to his theory.

An idiopathic iridocyclitis, as well as the inflammation resulting from trauma, can lead to anaphylactic inflammation of the second eye.

The acceptance of this theory leads to but one change in the present day treatment of sympathizing ophthalmia. The chief point, as before, is that of prevention, early enucleation or exenteration. It is possible that the lymphocytosis observed by Grandle furnishes a means for the valuation of individual cases.

**"A Clinical Study of Sympathetic Ophthalmia, with Special Reference to the Influence of Foreign Bodies Retained Within the Globe."**

Dr. J. O. McReynolds, of Dallas, Texas, followed. He concludes that a busy ophthalmologist may expect to encounter, on an average, from five to ten cases during his experience; that if he should have ten cases, one of these would occur from a retained foreign body, and about two cases from some well devised operation on the globe. The cases following one's own operations will most likely be reported to one's confreres, while a similar privilege will be extended to one's self. These results could be very materially reduced by a course of diminished conservatism, but this, if injudiciously followed, would result in the unnecessary sacrificing of many eyes that could be saved or restored to useful vision. Safe and intelligent conservatism can be acquired only by a well-directed experience and observation, and the supreme element of value is in a judgment that can most accurately foretell the probable outcome in a given injured eye. If an eye is hopelessly lost it should be at once enucleated. If an injured eye is going to do any good, it will probably give indication of this within two or three weeks. If the eye is to be permanently blind and subject to recurring attacks of inflammation, an enucleation involves no practical sacrifice, inasmuch as an artificial eye will see as well, will appear as well, be more comfortable, and will be almost absolutely safe. It cannot be said to a patient that an enucleation will give absolute security, but that it is safer than any of its substitutes. A non-suppurative iridocyclitis in an injured or operated eye should become the occasion of deepest concern. In all intraocular wounds, whether accidental or designed, the patients should be fully informed of the possibilities, and an adequate record of the same preserved. For this purpose the dictaphone is convenient and efficient. If the patient should positively reject the recommendation, he should be still informed that his greatest danger would probably occur at those times at which the exciting eye develops the most marked inflammatory reaction in the ciliary zone. There are no premonitory manifestations that will tell as surely of impending disaster. An examination of the injured eye today may show everything absolutely normal, and tomorrow it may have passed beyond recovery. In order that any seriously injured eye may be saved or that it may secure the benefit of any intraocular

operation, the possibility of failure must be faced. The patient must be willing to share with the surgeon the responsibilities of a procedure which, like other affairs of life, has not attained the standard of absolute perfection.

*DISCUSSION.*—Dr. C. D. Wescott, of Chicago, opened the discussion. He said it had always been his custom to advise immediate removal of an eye so badly hurt as to render the recovery of useful vision impossible. He also advises the removal of an eye containing a foreign body which cannot be removed. A patient with a shrunken stump and a sound eye is always advised to have an immediate removal of the stump, no matter how quiet and inoffensive it may appear. If it contains a calcareous mass the matter is urged very strongly. It must be remembered that sympathetic ophthalmia has started within ten or eleven days, and once started enucleation, is not effective; the disease may even begin some days after the removal of the exciting eye. Following the practice of removing old shrunken eyes destroyed by trauma, the speaker said he had found calcareous chorioid, sarcoma and foreign bodies, the presence of which was unknown and unsuspected before examination in the laboratory. The theory of Professor Elschmig seems the most acceptable ever advanced regarding sympathetic ophthalmia.

Dr. Wendell Reber recited a case of a woman in apparently perfect health, 33 years old, with a cataract on left eye. Advised to have eye removed, was told the extraction might save it, but might involve the other eye. Extraction, slow, grumbling healing, in hospital four weeks under treatment, and then told to return immediately if the slightest uneasiness occurred. Back in a week with a well developed sympathetic ophthalmia in right eye. It was certain that if the advice originally given had not been in the presence of a witness, this case would have been the occasion of legal action.

Dr. Jos. S. Lichtenberg, of Kansas City, called attention to the work of the French School, in which they inject around the stump of the optic nerve after enucleation iodide of mercury. If the theory of Professor Elschmig is true, such treatment would be useless.

Dr. Edward Jackson, of Denver, said that in estimating the relative danger of foreign bodies and apparently smooth operations, a correct estimate can only be reached by considering the number of injuries liable to cause sympathetic ophthalmia in which a foreign body is contained. If the proportion of injured



eyes containing a foreign body is larger than the relative proportion of those suffering from sympathetic ophthalmia, the fear of foreign bodies is not well founded. But if the proportion of eyes retaining foreign bodies is small and yet is larger than the total number of injuries in which the foreign body is retained, there is still reason to fear more danger from the retained foreign body than if it were not so contained. Such an eye should generally be regarded as a blind eye in considering the chances for sympathetic ophthalmia. He believes the proportion of sympathetic ophthalmias following uveitis after operation is about as large as the proportion of those following miscellaneous injuries.

Dr. A. A. Hayden, of Chicago, thought the reason there were no longer so many cases reported as caused by retained foreign bodies, is because the ophthalmologists are not leaving so many foreign bodies in the eye as they did before the day of the giant magnet.

Dr. McReynolds, closing the discussion, said the most important thing to remember was the danger from intraocular operations. There is no excuse for leaving a foreign body, but cases do occur where such are presented, and if an effort is made to extract, the patient must be prepared for an enucleation. The patient must be informed that if an attempt is made to remove the foreign body, a condition may arise which will make enucleation imperative.

Dr. Risley proposed a vote of thanks to Professor Elschinig for his paper, and said it had shed a wonderful light over the discussions and was undoubtedly the best theory of sympathetic ophthalmia ever presented. The motion prevailed.

#### **"Fatalities After Cataract Operation."**

Dr. Edward Bernstein of Kalamazoo, Michigan, recited the case of a gentleman of 72, who died within a month after cataract operation, there being no apparent infection present. Inquiries among a number of ophthalmologists shows that such fatalities do occasionally occur, although no direct connection can be shown. Forty-eight cases are reported.

Actual pathologic changes in the nervous system have been demonstrated by Dr. Crile, in a series of experiments. Under the influence of fear, most or perhaps all of the organs of the body are divided into two classes: those that are stimulated and those that are inhibited. The former are the entire vaso-motor, locomotor and muscular systems, the sense of perception, the

respiration, the mechanism for erecting the hair, the sweat glands, the thyroid, adrenal and the special senses. The entire digestive and procreative functions are inhibited. The increased action of the thyroid gland causes an increased metabolic activity; there is evidence that glycogen is actively called out, it being the most easily available substance for the production of energy; increased activity of respiration, sweat glands, etc. are needed to supply the greater demand for oxygen and the elimination of waste products. Repression of these activities in the presence of fear is more dangerous than activity. We fear not in our hearts alone, nor in our brain alone, nor in our viscera alone; fear influences every organ and tissue. In thus concentrating all or most of the nerve force on nerve muscular mechanism for defense alone, a greater physical force is developed. For the same reason, the exhaustion following fear will be the greater, as the powerful stimulus of fear drains the cup of nervous energy, though no visible action may result.

The agency that inspires sufficiently the faith—whether mystical, human or divine—whatever dispels worry—will at once stop the body-wide stimulations and inhibitions which cause lesions as truly physical as fractures. The remedy is to make patients see that worry and fear will damage the body, and that tranquility and resignation will banish fear and its baneful results. It should be the duty of the physician to reassure the patient to the fullest extent, to allay irritation and noise, fussing of attendants, all excitement, and by such drugs as will depress the associational powers of the brain, minimize the evidence that inspires fear. Psychic shock is as injurious as traumatic shock. The dark room and long confinement in bed after cataract operation have been done away with; the fetish of the bandage on the non-operated eye must not be clung to too closely. Some nerve-quieting drug, such as morphia, should be given after the operation. It would be well to see that the patient is accustomed to the hospital surroundings before the operation. The system should be flushed with plenty of water, the intake of vegetables increased and that of flesh decreased, and the patient alkalized with sodium carbonate in vichy to avoid toxic conditions and secondary glaucoma.

*DISCUSSION.* Professor Elschmig said he had seen a few fatal cases, some of which could not be connected with the operation, as they would probably have died anyhow. Every case a little excited, gets for the last few days before operation some-

thing to make him sleep, and after the operation a half grain of phenol.

Dr. Risley, of Philadelphia, said that it was not so much a surprise that there is an occasional death as that there are not more intercurrent deaths, when it is considered that so large a per cent of cases are in old people. Of late years he has taken the blood pressure in all cases and find it sometimes from 180 to 223 mm. of mercury. He is careful to reduce this blood pressure and treat them some time before the extraction. Drugs like virinol are not so useful as tonics, and he gives tincture nuxvomica, tincture china and comp. tr. gentian cerup. Every man in the habit of taking it gets his drum, as it gives him an uplift. Often a patient is trundled out of the ward and given a smoke.

Dr. Keiper, of La Fayette, said it was a great mistake to withdraw liquor from alcoholics, as it was a source of worry to them and might be accompanied by bad results. He gives his patients an hour and a half before operation, 15 grains of bromide of potassium and 15 grains of hydrate of chloral.

Dr. Percy Friedenbergl, of New York, said that the fact that these patients are very old and death a possibility to be borne in mind, should make one very careful about the generally favorable prognosis given in cataract cases. The patient should be under observation before the operation, especially in the night, to see if he sleeps well, or gets up frequently to empty the bladder, and whether he coughs on lying down. If they come on the morning of the operation and return to bed bandaged and blind, they do not know where they are and this gives them an uneasiness.

Dr. Linn Emerson, of Orange, N. J., said that what had just been said is the reason he does a preliminary iridectomy in all cases. Death and cataract operations are simply coincidents.

Dr. Wendel Reber said the blood pressure cuff had shown the pressure go up 20 mm. just as he took hold of the eyeball. In glaucoma he had had one go up 40 mm. just as he was about to make the section. Hence his patients now get a drachm of bromide two hours before the operation. Those who show an elevated blood pressure get three or four drops tincture aconite, but he will use virinol as recommended by Professor Elsehnig, hereafter. Returning to mania, Dr. Reber suggested that his hearers lie down for four hours with both eyes bandaged and see how quiet they could remain. He has used nothing but adhe-

sive strips for the past five years. The non-operated eye is released at the end of 48 hours.

Dr. E. B. Heckel, of Pittsburg, thinks one should beware of false logic and not attribute a death to the operation which is simply intercurrent. The patient should be told the exact situation and that if he will be passive and have a little confidence, all will be well.

Dr. A. G. Bennett, of Buffalo, reported three fatal cases within four months: the first one went into diabetic coma within twenty-four hours after operation, dying on the sixth day; another, a woman of 58, a typical extraction which went smoothly, but was followed by a low grade iritis due to some cortex that could not be removed, died of a sudden apoplexy on the twelfth day. A man of 55 had a perfectly smooth extraction, no reaction, died on the twenty-first day of acute pneumonia. Cases of diabetes are approached with fear and trembling. He tries to get these patients out of the hospital and amidst their home surroundings as soon as possible.

Drs. Wescott, of Chicago, Geo. F. Hawley of the same place and S. B. Craton, of Syracuse, reported fatal cases following seemingly safe cataract operations.

Dr. G. S. Ryerson, of Toronto, presented five cases showing successful treatment of the nose, mouth and eyelids by radium. He said he had now had three years' experience in its use and believes it a therapeutic agent of permanent value which will grow and increase with further experience and as larger quantities become available at a reduced price. It possesses great penetrating power and under proper conditions of filtration can be used for long periods without injury to the normal tissues. He has also come to believe in the selective powers of radium, of which he was formerly sceptical. The cases reported were rodent ulcer of lower lid, involving conjunctiva; epithelioma of the margin of the upper lid, sarcoma of the eyebrow.

**DISCUSSION.** Dr. Savage said that for several years he has ceased to operate for malignant diseases occurring about the eyelid, for the reason that radium effects cures more readily and benignly than surgery would.

Dr. Lichtenberg said that the character of the scar after the use of radium is much more pliable and thinner than the scar after the X-ray and other methods.

Dr. Suker reported a case of epithelioma of the lachrymal sac, not operated and now using radium in addition to high fre-

quency current alternate days, a remarkable result being obtained in a short time.

Dr. Ryerson, closing, said that the activity of radium increased with age, it being much more active at the end of three months than when first secured.

**"Phlyctenular (Eczematous) Conjunctivitis and Keratitis."**

with special reference to the etiology and the value of tuberculin as a diagnostic agent, with a report of forty cases, by Drs. A. Edw. Davis and Harry Vaughan, of New York, was read by the former. He said that there is a lack of unanimity of opinion as to the cause of this disease. All observers are agreed that, in the vast majority of cases there is an underlying dysorasia (scrofula), accompanied most of the time by an eczema and a nasal catarrh. In addition it must be taken into consideration that the disease attacks only the poorly nourished and those in unhygienic surroundings; its tendency to recurrence and its chronicity; that it is a focal affection of the conjunctiva; its glandular complication; its response to the use of tuberculin and the fact that following the installation of tuberculin into the eyes whole crops of phlyctenules and even a typical phlyctenular keratitis have been produced, and finally its diagnostic and therapeutic response to tuberculin. All this leads to the belief that tuberculosis is the underlying cause in every case and that the characteristic lesion occurs only in those who are victims of tuberculosis, latent or otherwise. Whether the phlyctenule itself is due to tubercle bacilli or to the toxins of this bacillus or to other cause is yet to be determined. Judging from the experience of the authors, tuberculin should be used in every case, both as a diagnostic and a therapeutic measure, as a specific, and the general hygienic and dietetic measures carried out, just as in any other disease in which the system is in a run-down condition.

**DISCUSSION.** Dr. Friedenberg said that the reaction to tuberculin by no means indicates that a given case is tuberculosis. One may have phlyctenules in a tubercular patient just as one may have fracture in a syphilitic. He thinks the toxic basis is the most probable.

Dr. H. Pyfer, of Norristown, said he had cases which did not respond to proper hygiene and dietetics, and in his work at Jefferson Hospital 90 per cent have shown positive reaction to tuberculin.

Dr. Will Walter, of Chicago, said that Prof. Straub, of Amsterdam, had offered apparently conclusive proof of the



tubercular nature of the malady. On account of the high percentage of post-mortems which show tuberculous infection at some period of life, he thinks the opsonic index is a more dependable diagnostic agent in this disease, than is the tuberculin test.

Dr. Young said the laboratory findings would persuade one that there is a definite connection. A careful investigation of the family history will bring out more evidence in this respect than is to be expected. An auto-intoxication is commonly present, especially in the young. He therefore gives them bichloride of mercury to great advantage.

Dr. Davis, closing the discussion, said that the fact the germ could not always be found was of no significance. Where the bacteriological diagnosis cannot be made often the clinical diagnosis can.

#### **"Some Early Fundus Signs of Arterio Sclerosis."**

Dr. Allen Greenwood, of Boston. Gave a resume of his observations of the early fundus lesions in arterio sclerosis, such as bended veins, yellowish spots below and to the nasal side of the disc, impaired vision without changes in the media and a questionable change in the macular region. He finds the blood pressure almost always raised where these signs are present. These indications are often found in the examination of business men of 45 to 50, who come for their first presbyopic glasses. The results of treatment have been encouraging. Treatment should look toward the lowering of the blood pressure and the regulating of the body metabolism. There should be an immediate evacuation of the bowels, followed by a careful regulation of the intestinal tract, the use of nitro-glycerine or some remedy used for the lowering of the blood pressure, and a careful regulation of the habits, diet and general body functions. Small doses of the iodides may be helpful, and in some patients the use of buttermilk or some of the preparations of lacto-bacilline are useful. In the majority of the cases the most that can be expected is a staying in the progress of the disease or a lessening of the rapidity of its progress.

*DISCUSSION.* Dr. Wendell Reber, of Philadelphia, opened the discussion. He said he believed that well-established signs of arterio sclerosis are not curable, but was fairly well convinced that if the beginning signs are carefully treated on a general basis they are frequently amenable and even curable at

times. At any rate, the general condition back of it is curable. It is only when they are diseased that the walls of the retinal vessels are seen. It is in the second and third distribution these changes are apparent. The dark red nerve stage is one that cannot be altered by treatment. The same is true of the yellow spots. These are areas of hemorrhagic extravasation which are undergoing degeneration. Dr. Reber does not believe the diastolic pressure tells the state of the circulation. It is the difference between the diastolic and the systolic that tells the story. The high tension of living in America is responsible for arterio sclerosis.

Dr. Robert Scott Lamb, of Washington, had been much impressed with the saucer-shape of the disc. The change in the macula is an edema and is quickly cleared up. He believes that the conditions in the earliest stages are to be cured.

Dr. Risley, of Philadelphia, emphasized the importance of recognizing and treating these early evidences of beginning arterio sclerosis, which are so frequently overlooked. Sometimes the eye is first involved, and sometimes the kidney.

Dr. Suker said if one will graduate the light it will be possible to see the arterio sclerotic changes in the nerve as well as the other details.

#### **"The Clinical Course of Conjunctival Affections Associated with So-called Trachoma Bodies."**

Dr. Martin Cohen, of New York, said that his later observations go to confirm the hypothetical conclusions arrived at two and a half years ago that there exists an independent conjunctival affection associated with the so-called trachoma bodies, this affection resembling trachoma with acute manifestations, but not complicated by pannus or cicatrices and their sequelae. The assumption that an attenuated trachoma virus might be responsible is hardly tenable, as under such circumstances the bodies would be demonstrable oftener in chronic trachoma than was really the case. In only 60 per cent of cases were the trachoma bodies detected. Therefore, the description of trachoma, as considered by most ophthalmologists, must be somewhat altered.

*DISCUSSION.* Opening the discussion, Dr. Walter said that the conclusions reached in experiments in the Montreal Hospital by Dr. McKee were, that the trachoma bodies are the result of changes in the conjunctiva and could not be considered as the cause of the inflammatory reaction.

**"The Use of the Conjunctival Flap in the Treatment of Corneal Infections, and of Pannus."**

Dr. Elmer G. Starr, of Buffalo. Described the technique of the operation and stated it was a most effective method of controlling corneal infection. It does not leave the dense corneal scar which usually follows the use of the actual cautery and it also has a better immediate effect. The method is applicable in nearly all forms of corneal ulceration, even infection following gonorrhoeal conjunctivitis, and it is the only operation which holds out hope of preserving vision in grave cases, although it is not intended to take the place of applications and other means directed toward the control of specific infections. In the treatment of rodent ulcer, especially in elderly people, this operation should be done at once. It is also of great value in the treatment of pannus. The operation is simple and usually done under cocaine anaesthesia. It leaves less dense corneal opacities than other operations. The diseased cornea must be kept covered with the conjunctiva until healing has commenced.

**DISCUSSION.** Dr. Allen Greenwood opened the discussion, with a description of two cases in which the cautery had been of no avail but in which Dr. Starr's operation had been followed by the happiest results.

Dr. J. M. Ray, of Louisville, said the operation had often served a good turn in cases of small perforating phlyctenular ulcer with a piece of the iris sticking into the ulcer.

Dr. Suker said he used this in accidental injuries, irrespective of the nature of the wound. He warned against putting back anything that had been touched with the fixation forceps.

**"Enucleation or Evisceration?"**

Dr. A. G. Bennett, of Buffalo. Said each case must be studied for itself and the procedure adopted which promises most for the patient, first in safety to the other eye, and second, the most natural-looking prosthesis. He advocates evisceration in recent injuries in hopelessly damaged eyes; in old cases of buphthalmos; in quiet cases of phthisis bulbi; in old cases of opaque cornea, when cosmetic effect is desired; in absolute glaucoma. He would perform enucleation when there is the slightest danger of sympathetic ophthalmitis; when time is an essential element; in a weakened patient; in all cases of malignancy. The danger of sympathetic ophthalmitis is probably no greater from one than

from the other. The healing of an enucleation is more rapid but the cosmetic effect much better in an evisceration. While the reaction from the latter is frequently severe, it is possible to prognosticate which cases will heal readily.

*DISCUSSION.* Dr. Starr opened the discussion, saying his experience led him to believe there is less reaction following an evisceration if the eye has not been long irritable preceding the operation. As a method of saving time in general anaesthesia he suggested having the patient hold the cone, and when his hand falls the operator may commence.

Professor Elschmig said the four points to be considered were sympathetic ophthalmitis, the time of healing, the psychic effect and the cosmetic effect. In absolute glaucoma he would not do an evisceration or in severe cases of irritation.

Dr. Percy Fredenberg said he would not do an evisceration because he thinks the slight gain is hardly to be weighted in contrast. A piece of the optic nerve ought, if possible, to be secured. If there is an inflammation it is impossible to say that no chorioidal tissue, pus and bacteria have gotten into the optic nerve.

Dr. A. E. Prince, of Springfield, Ill., said he would do an enucleation in those cases of low sepsis where a gold ball would be entertained in the orbit, otherwise he would do an evisceration. He pointed out the advantage of using carbolic acid to wipe out the interior of the scleral cavity after the operation. To get as good a stump as possible, the anterior of the globe should be packed with strips of iodoform gauze saturated with bichlorid of mercury for five days to maintain the curvature of the sclera.

Dr. Heckel, of Pittsburg, advocated the method of Dr. Prince in regard to the use of carbolic acid. Through an elliptical opening he scrapes out the contents as dry as possible and then swabs out the cavity with a cotton swab and carbolic acid, after which the cavity is flushed with alcohol which neutralizes the carbolic acid. There is no more discomfort than in an ordinary enucleation, and the cosmetic effect is better.

Dr. W. L. Simpson, of Memphis, favored the stitching in of fat after an enucleation as giving a better stump than that of an evisceration.

Dr. Greenwood, of Boston, said the operation of the future would be enucleation with the implantation of something in the place of the eyeball. He uses a glass ball from 20 to 24 mm. in

size. There is no sinking in of the upper lid if a ball that is large enough is used.

Dr. G. S. Ryerson, of Toronto, said evisceration should, if possible, be done in the case of a child under 5 years, as sometimes atrophy of the side of the face on account of non-growth of the orbit followed enucleation.

Dr. Suker said there is no difference between the two operations as regards sympathetic ophthalmia. He implants a globe as large as can be inserted, and invariably with good results. If it comes out, the judgment as to the size needed has been at fault, but it can be done over without harm.

**"Some Visual of Accessory Sinus Disease."**

Dr. Percy Fridenberg, of New York. Called attention to the significance of objective signs about the eye and orbit in the diagnosis of accessory sinus affections. Many symptoms of progressive accessory sinus disease and almost all of serious complications are ocular or orbital. Careful tests of visual function and the determination of scotoma, central or peripheral or of anomalies in the region of Mariette's blind spot may establish a diagnosis of accessory sinus disease before nasal symptoms are sufficiently marked to attract attention. In a large proportion of cases the oculist is consulted first for failing vision, obscure visual symptoms, scintillating scotoma, hemisideria, asthenopia, headache, or for the cure of inflammation of one or the other tissues of the eye, any or all of which may depend directly on the accessory sinus disease. The oculist must recognize the characteristic ocular symptoms and appreciate the importance of a rhinological examination in obscure eye cases. The ophthalmologist will detect functional or organic disturbances which indicate sinus affections and the rhinologist must determine by exploratory operation or examination the extent, character and gravity of the accessory sinus affection. The oculist should consider local signs of inflammation, such as edema, disturbances of position or motility of the globe, local pain and tenderness and then the functional disturbances of vision for form, light and color with their respective significance for the diagnosis of accessory sinus disease. From the clinical and diagnostic point of view one must also consider the various types of sinus disease, acute and chronic and examine the sinuses separately for a special symptomatology as indicated by ocular involvement characteristic of each, whether mild or grave, subjective or objective. The presence of



an enlarged blind spot should always lead to careful examination of the posterior accessory cavities, and conversely the presence of an accessory sinus suppuration should require careful tests of the center of the field of vision for white and for colors.

The *DISCUSSION* was opened by Dr. Derrick T. Vail, of Cincinnati, who said that this subject until recently had been ignored or ridiculed, but that all are now ready to concede that there is an intimate connection between the eye and the nose. He has seen abscess of the orbit the result of a simple curettement of the ethmoid. The lymph stream of the upper part of the nose is directly connected with that of the upper part of the brain, and inflammation in the nasal attic is apt to be followed by certain symptoms. The infection may follow along the veins, or by contiguity of surface. Another route is the nerves.

Dr. Fridenberg added that in the cases he has had and those of the rhinologist with whom he has worked, they have been led to believe that the positive finding of the enlarged blind spot is significant of accessory sinus disease; the negative finding has no significance.

**"An Inquiry Into the Results of Established Treatment of Detached Retina, and a New Theory."**

Dr. Derrick T. Vail, of Cincinnati. Concluded that the established medical treatment of detached retina is a failure, because the etiology of the trouble is not recognized; the surgical treatment is not founded on scientific principles and is therefore brutal; detachment of the retina is not a disease but a symptom; the disease of which it is a symptom is paralysis of function of the ciliary processes, causing arrest of aqueous secretion within the eye. The treatment should be the use of those measures which have for their object the re-establishment of the lost function of the ciliary processes.

*DISCUSSION.* Dr. Sam'l D. Risley, of Philadelphia. Opened the discussion, saying his own experience was in accord with that of Dr. Vail. The only exception to the extreme gravity of prognosis is in the treatment of patients where detachment is imminent but has not yet occurred, or when they are seen when the accident is still in its incipency or immediately after its occurrence. The prognosis is more favorable if the detachment of the retina is in the lower half of the globe. These detachments occur usually in highly myopic eyes only, and there only through accident except where there is present incipient progressive disease of the choroid with exudation of the vitre-

ous. No treatment is complete which does not take into consideration the systemic state which is etiologic or a complicating factor in the detachment.

Dr. Elschnig said he had only seen two cases cured in twenty-five years.

Dr. Savage has, in accordance with the theories of Fischer of Cincinnati, given the citrate of sodium to produce exosmosis with great success.

Dr. G. B. Jobson, of Franklin, has made the observation, probably diagnostic, that the sclero-corneal junction with the iris drops so that the border of the pupil becomes straight.

Dr. Greenwood has been so fortunate as to cure a case now four years old, by the salt injections, rest in bed, bandage, pylocarpine, sweats, etc.

Dr. Doane, of Butler, Pa., told of two cases recovering, both of which were hyperopic.

Dr. Vail, closing discussion, said he had seen the occurrence in hypermetropic eyes several times.

#### **"Perithelioma of the Eyelids."**

Dr. Robert Scott Lamb, of Washington, described a case in a mulatto, occurring in the left upper and lower lids, of two years' standing. Specimens were sent to several different laboratories, and as the reports were varied and confusing operation was deferred for six weeks. At that time the diagnosis of perithelioma was made and a complete exenteration done with apparently good result.

#### **"Case of Sarcoma of the Ciliary Body."**

Dr. C. D. Wescott reported a case in a woman in whom the left breast had been removed for carcinoma and fluid in the chest was diagnosed as carcinosis of the pleura. Glands dissected from the right axilla were diagnosed as sarcoma. Specimens from all these localities revealed sarcoma cells. Examination of a slide from the axillary shows distinct pigmentation which would seem to confirm the opinion that the tumor of the eye was the primary growth.

#### **"Melanotic Sarcoma of the Choroid Coat of the Eyeball."**

Dr. Geo. F. Keiper, of La Fayette, reported two cases with the histologic findings. He said the prognosis is good provided the eye is enucleated while the tumor is young and small. If allowed to pass into the first period of the second stage exenteration of the orbit will be necessary, when it may be too late to save the life of the patient. In any event the prognosis

must be guarded, as the blood stream may have carried tumor cells to distant part of the body.

**DISCUSSION.** In the discussion of the three papers, Dr. Harry Gradle, of Chicago, said the case of tumor in a shrunken globe, referred to by Dr. Keiper, was often the cause of the shrinking rather than the result. First there is the tumor, then irido-cyclitis, then shrinkage.

Dr. Suker said that in the examination of a large number of cases and histories he had found that carcinomas were never primary in the eye and that sarcomas are always primary in the eye. Removal of the eye in carcinoma is of no avail, as the patient usually dies in four or five weeks.

**"Characteristic Pose of the Body as Influenced by Forms of Adjustments of the Eyes."**

Was a paper by Dr. G. T. Stevens, from New York City, who stated that the habitual pose and carriage of the body of the individual is, to a very important extent, modified or controlled by the conditions of adjustments of the eyes in the orbits. The habitual or characteristic pose of the body thus influenced or controlled may be such as to induce or perpetuate certain classes of affections or diseases resulting in serious inconvenience or suffering, limiting the usefulness or even the life of the individual. This characteristic pose may, by certain changes in the adjustments of the eyes which with skill may be accurately and safely effected, be so modified that numerous states of disability may be effectively and often speedily relieved. This proposition involves technical questions of physiological optics. Refracting glasses may aid in some of these adjustments. Instinctively the line of vision seeks and often finds a position in such a glass in which a certain amount of compensation for a declination is found. More radical and most effective are those means which by operative measures tend to adjust the normal plane of vision to the horizon or to counteract the unfavorable tiltings of the eye meridians. It is not a question altogether of the superior rectus and the inferior rectus, but a complicated thing which the most skilled mathematician will find difficulty in solving.

**"Value of Prisms in Ophthalmic Practice."**

Dr. Wendell Reber, of Philadelphia, read a paper in which he described the various uses of prisms and concluded that a practice can show 145 good results in 232 attempts at prism exercise, and 649 good results in 776 prescriptions for permanent prisms

seems to have justified itself. This department of ophthalmoscopic science requires that the surgeon shall be not only a thorough going refractionist and oculo-myologist, but also something of a neurologist and an all-wise general practitioner.

**DISCUSSION.** Dr. Geo. Stevens said the wearing of prismatic spectacles to neutralize heterophoria has been greatly abused. But the safe and often useful plan of gymnastic exercise is to be preferred to ill considered and badly executed operations upon the muscles, which are less in evidence today than in times past.

Dr. Savage said that any muscle exercise, to be of benefit, must be short of fatigue. The only exercise which will not fatigue is rhythmic exercise—action alternating with rest. The worst that can be said about prisms at rest is that they interfere with this law, but it is often a case of the choice of the less of two evils when the trouble cannot be cured by exercise or operation.

Dr. Will Walter said he had claimed an analogy between writer's cramp and reader's cramp which has served as a good working hypothesis. The assumption of fatigue or exhaustion of the co-ordinating mechanism, the work of co-ordination being changed in detail by the applied prism clears the subject of much obscurity and the reaction of fatigue to inco-ordination both as subjectively and objectively manifested is commended to the thought of the hearers.

#### **Accessory to the Ophthalmometer Forming a Monocular Corneal Microscope.**

Dr. H. S. Gradle, of Chicago, presented an "Accessory to the Ophthalmometer Forming a Monocular Corneal Microscope," which permits a more thorough examination of the cornea and iris, which gives a moderate magnification of the anterior aspects of the eye and is of moderate price. It consists of an objective, a double prism of the Wollaston type and an ocular. By removing the objective tube of the ophthalmometer which contains the prisms and the objectives, and substituting another tube of the same dimensions but omitting the prisms, there is secured a microscope with a focal distance of about 11 inches. Fastened to this tube is an arc of 90 degs. bearing a small lamp which slides freely upon the arc and its rays are constantly focused upon the eye. The device is especially useful in infiltrations of the cornea and in anomalies, congenital or acquired, of the iris, as well as abnormalities of the lens capsule.

**"Intra-Capsular Extraction of Cataract After the Method of Prof. Stanculoeanu, Bucharest."**

Dr. W. Likely Simpson, of Memphis, read a paper on this method, which demands a good light, preferably artificial, as daylight is variable; a large incision; rupture of the zonular fibres through movements of the lens by means of a special forceps which can be procured of V. Mueller & Co., Chicago, and a steady, continuous pressure while expressing the lens. He considers this a safe procedure, not endangering the eye more than the others, and at the same time giving a black pupil with no after cataract necessitating dissection. It also does away with the cortex which so often gives trouble after the ordinary operation. The danger of iritis and iridocyclitis is certainly much less if the lens can be removed in its capsule.

Dr. Savage said the ideal operation is one which will loosen the lens by a rotary motion on its antero-posterior axis so as to make no pressure on the vitreous body.

Dr. Risley said this operation commends itself to his judgment as the Smith operation never has done.

Dr. Simpson, closing the discussion, said in answer to questions, that he had seen loss of vitreous in two operations out of twenty-four, and then only the tiniest speck.

**"Conservation of Vision as a National Movement: Its Origin and Purpose."**

Dr. F. Park Lewis, of Buffalo, said that in order to prevent a multitude of babies from becoming blind there must be adequate laws, proper education concerning the manner and nature of infection, prophylactics and necessity of immediate treatment, authority in the hands of health boards to enforce laws, and public sentiment which will demand the enforcement of the laws. It is urged that suitable and uniform regulations for the proper construction of school buildings, especially as regards their lighting; provisions for special classes, the instruction to be largely without books for those who cannot use the eyes with comfort or safety; and that on the fly leaves of school books be printed suggestions as to the care of the eyes, as is done in France. The work of the Committee of the American Medical Association, the National Educational Association and the Russell Sage Foundations was described.

*DISCUSSION.* Dr. Risley said that comparatively few



cases of myopia are seen nowadays on account of the work the ophthalmologist has done in correcting astigmatism, etc.

Dr. Wescott said he has secured a thousand of the little booklets distributed at the child welfare exhibits, and gives one of these to each patient coming into his office, in attempt to educate the public in the matter of preventable blindness.

Dr. Greenwood commended the idea of having instructions printed in the school books, and suggested that the society have such leaflets printed for pasting in all library books and sent to superintendents of schools with request that they be pasted in all books.

### WILLS HOSPITAL OPHTHALMIC SOCIETY.

MEETING OF MAY 7, 1912.

DR. WILLIAM ZENTMAYER, CHAIRMAN.

#### An Unusual Example of Recurring Transient Failure of Vision.

Dr. S. D. Risley presented for study a man 61 years of age who had come to the clinic in November, 1908, with his left eye blind from simple glaucoma. Up to that time there had been no inflammatory symptoms or pain. The right eye had V—6/xii, no contraction of the field and no cupping of the nerve. A year later he had returned with a fulminating attack of acute inflammatory glaucoma for which the ball was removed. The right eye remained as in 1908. In January, 1912, he suffered an attack of pneumonia, during the course of which the right eye became red and painful and he says "nearly blind." He was not able to return to the clinic until March, when the eye was injected, the anterior chamber quite obliterated by close contact of iris and lens; the pupil dilated; the tension normal; the cornea transparent, but anaesthetic; the field of vision concentrically narrow; V—2/xxx. He complained only of transient attacks of nearly complete blindness coming on when first awakening in the morning, but disappearing gradually until before noon it would resume its normal state. During these attacks the tension was but little if any greater than during the intervals. At times even between the attacks the cornea was steamy. Ophthalmoscopic study of the fundus was difficult, at times impossible. The lens was gray and there were vitreous webs, but with the strong light of the electric ophthalmoscope marked cupping of the nerve could be demonstrated.

Dr. Risley presented the case for study and discussion, not

for the relation of the case to the general subject of glaucoma, but as to methods of treatment, emphasizing the fact that the man had but one eye; that the anterior chamber was practically obliterated. Operative interference was necessary but what procedure should be chosen, iridectomy or one of the more recently devised operations for the reduction of tension?

Dr. Posey said that on account of the inflammatory symptoms, some form of operation seemed necessitated, for he was doubtful whether miotics could maintain vision under such circumstances. On account of the shallowness of the chamber, the cutting of the field of vision and the increased tension, he thought that the most conservative form of operative procedure should be chosen and counseled the performance of the operation of cyclodialysis, in preference to that of iridectomy, the former procedure being much less likely to be followed by intra-ocular hemorrhage and loss of visual field.

Dr. Zentmayer said that he agreed with Dr. Posey that some operation other than iridectomy should be done. The choice lay between cyclo-dialysis and posterior sclerotomy, and he favored the former. The fact that the reduction of tension after this operation is apt to take place gradually, sometimes as late as 48 hours, was an element of safety in many cases of glaucoma.

Dr. Risley, in closing, agreed fully with the reasoning of Dr. Posey and Dr. Zentmayer, and would adopt the method suggested. He remarked in passing that the obliteration of the anterior chamber was difficult to explain. Was it due to the absence of aqueous humor, because of the interference with the functions of the ciliary body or had it escaped backward between the sclera and uvea? He alluded to two cases of glaucoma occurring in his private practice in both of which the aqueous humor had disappeared from the anterior chamber on the fifth day after iridectomy and after the wound had closed and the chamber fully formed. In one of these vision was lost; in the other the detachment of the ciliary body and choroid in the upper temporal quadrant was demonstrated by Dr. deSchweinitz and himself, but was replaced in ten days by complete rest in bed, electric light sweats, eserine and dionin and large doses of calcium chlorid internally, the patient recovering with a normal field and V—6/vii  $\frac{1}{2}$ .

### **Secondary Glaucoma Following Iritis.**

Dr. Posey showed a man with secondary glaucoma from

pupillary occlusion, complicating an acute attack of iritis. He dwelt upon the therapeutic problem which cases of this nature presented. Mydriatics are often harmful on account of their tendency to increase intraocular tension, while myotics increase the inflammation in the iris and the ciliary body without lowering the tension. He thought iridectomy in acute iritis useless, on account of the coloboma filling in with inflammatory material and the purpose of the operation defeated. He relied in such cases upon mercurial inunctions, salicylate of soda internally, dionin, and the alternate use of weak doses of atropine and pilocarpine.

Dr. Risley said that he had not hesitated to operate on these cases, but preferably between the recurring attacks of acute exacerbation. He thought it important to relieve the tension as soon as possible or the eye would be destroyed by secondary glaucoma. He related one case in which the collection of the products of inflammation back of the iris forced it into contact with the cornea, the pupillary border being firmly bound to the anterior capsule. He had carried the blade of the keratome through the corneal limbus, directly into the projecting iris into the posterior chamber, and by lateral movements of the blade enlarging the opening as much as possible. In withdrawing the blade slight pressure backward was made on the posterior lip of the wound and a yellowish, viscid fluid escaped. The procedure was followed by relief of pain and rapid improvement of the eye, but an iridectomy was done later to secure free communication between the anterior and posterior chambers. He regarded iridectomy in recurrent iritis with extensive posterior synechiae as a most valuable procedure in that disease, but where possible it should be done between acute exacerbations.

#### **Successful Removal of Lenses Dislocated Into the Vitreous.**

Dr. Posey exhibited a Hebrew child, 10 years of age, upon whom he had successfully removed the lenses of both eyes from the vitreous. Both lenses had been primarily subluxated from birth, due doubtless to a weak Zone of Zinn. Both eyes were operated on under ether. In the right eye the lens was extracted with but slight loss of vitreous following the incision through the cornea. In the left eye the use of the loop was necessary with again but slight loss of vitreous. Dr. Posey commented on the ease with which the lenses were removed and said it was surprising how little vitreous loss had occurred.

He thought that the loop was often applied in a faulty manner and dwelt upon the necessity of applying the instrument to the lens in a manner somewhat similar to that in which the blade of the obstetric forceps is applied to the head during labor. Healing had been prompt and with high sphero-cylindrical lenses satisfactory vision was obtained in both eyes.

Dr. Risley suggested that less injury to the vitreous would be done by engaging the lens with a sharp tenaculum instead of using the loop or spoon as a vectis. He thought that the surprising ease with which these dislocated lenses had been extracted might be due to the fact that the vitreous was not fluid and they had slipped downward and backward between the consistent vitreous and retina, and retraced the same course readily under slight pressure.

Dr. Zentmayer asked Dr. Posey whether he had ever had the opportunity to find out the terminal result in cases of dislocated lenses into the vitreous removed by the vectis. His experience with the operation in traumatic cases was that subsequent detachment of the retina sometimes results.

#### **Salvarsan in Interstitial Keratitis Due to Congenital Syphilis.**

In a paper on the use of salvarsan in parenchymatous keratitis due to congenital syphilis, Dr. Posey cautioned against the use of the drug in this class of cases, for he had seen increased haze of the cornea with exacerbation of all symptoms following some 24 or 48 hours afterward in 4 or 5 cases after a single dose of the drug. He referred to the literature on the subject, and said that Stullp had published in the *Klin. Monats-blatter fur Augenheilkunde*, March, 1911, p. 371, a collection of 111 cases of parenchymatous keratitis due to congenital syphilis. Rapid healing had followed in 3 cases, marked improvement in 4 cases, tendency to clear in 6 cases, a favorable influence in 16 cases, rapid improvement in symptoms and disappearance of photophobia, without appreciable clearing, in 6 cases. Improvement but only after a second injection, in 2 cases. Improvement but followed by relapse in 5 cases, no success even after two or three injections in 69 of the cases.

In the same journal of February of this year, Weigmann has continued Stullp's researches and reports that of 18 cases, Uhthoff saw doubtful improvement in but 3 cases, 9 were apparently uninfluenced, and in 2 the inflammation increased. Benda had no success in 12 cases, indeed, the second eye got worse. Manzutto saw not the slightest improvement in 4 cases.

Wessely concluded from a study of 70 cases in German literature that Salvarsan had no power to favorably influence the course of the disease. Japanese ophthalmologists report the same.

In corneal affection due to acquired Syphilis, on the other hand, the reports are more favorable. Manzutto, Becker and Igersheimer all reporting success of cases.

Dr. Zeigler had seen two cases of his own and one of Dr. Oliver's. Two of these were markedly improved, while one uninfluenced. He said that Ehrlich had stated that affections of the auditory nerve following the administration of the Salvarsan were due to the setting free of toxins following the destruction of the spirochetes, and if a second dose were given in about a week this would soon clear up.

#### **A Caution Against the Indiscriminate Prescribing of Glasses in School Children.**

Dr. D. F. Harbridge read a paper in which was urged the necessity for a rather more conservative use of glasses. The remarks applied only to school children up to possibly the age of 14 or 15 years, in which there was present low degrees of simple hyperopia or low hyperopia with a low amount of Hyperopic astigmatism, the axis of the cylinders being symmetrical, and the asthenopic symptoms rather indifferent. The writer believed it highly desirable that a cycloplegic be instilled, and the static refraction accurately determined in each case referred to the oculist by the school physician. If the degree and character of the refraction and the symptoms warrant correcting lenses they should be prescribed. If, however, the merits of the case do not warrant the use of correcting lenses a frank statement to the effect that they are unnecessary should be made to the parents. The essayist referred to many instances illustrating the absurdity in the indiscriminate ordering of glasses to satisfy the "wants" of an impressionable child, rather than determining their real "needs."

Dr. Zentmayer thought Dr. Harbridge's paper timely and agreed with much that it contained. He thought, considering the large amount of reserve accommodative power possessed by a child under 12 years of age, that simple hyperopia even in the presence of a low degree of astigmatism does not necessarily call for correction. If headaches and asthenopia are complained of, it would be far better that the child be taken from school until its physical powers could be developed. Often, however, because of the indifference of parents there is no way of affording



relief other than by the correction of the error of refraction. He thought that the most common cause of asthenopia was poor illumination.

Dr. Risley agreed with Dr. Harbridge in his thesis. He thought that if asthenopia were present in a young person with a refraction error in each eye not greater than  $+ .50$  D, some other cause for the symptoms should be sought for, for example, impaired general health or anomalies of binocular balance. In his own examination of school children's eyes he had called attention to the fact that all the cases of refractive error discovered, in only 60% was the error high enough to cause asthenopia or ocular disturbance of any kind.

J. MILTON GRISCOM, M. D., Secretary.

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### ST. LOUIS MEDICAL SOCIETY.

OPHTHALMIC SECTION, MARCH 6, 1912.

BY FREDERICK PARKER, M. D.,

ST. LOUIS, MO.

#### **Tubercular Choroiditis of the Macula.**

Miss F. Z., age 16, bundle wrapper, was admitted to the Washington University clinic on January 2, 1912, with the following history: Father died in October, 1911, from tuberculosis; lost two brothers when quite small—cause unknown. Mother still living. Grandfather on mother's side died from tuberculosis eight years ago. Rest of family, consisting of two brothers, in good health. Miss Z. claimed always to have had good health, although she was never robust. Present weight 103 pounds. Has suffered from headache since before she quit school, which was two years ago. Since the last of November or the first of December, 1911, noticed blurring of right eye while reading. This has persisted, there having been no apparent change in vision in left. Does not notice the left any more blurred now than always, although vision is only 15/60, while with right can only count fingers at four feet. Ophthalmoscopic examination of right, vitreous cloudy, disc margin blurred, vessels can scarcely be made out on disc, and appear to view only after quite a distance from it. In macular is a white infiltrate about size of disc, oval in shape, long axis vertical. Towards periphery vessels become plainer. Left eye disc hyperemic and margins slightly washed; macula apparently normal. Refraction slightly plus. Was referred to medical clinic. Von Pir-

quet positive; X-ray showed marked hilus infiltration. Is now receiving tuberculin injections three times a week and is improving.

*DISCUSSION.* Dr. W. E. Shahan: I would like to know on what definite grounds the differential diagnosis was made in the case of tuberculosis choroiditis. As to the case of retinal separation, I had the opportunity of observing a case similar to this one. In the beginning it presented a sharply defined knob-like protrusion into the vitreous from the temporal side, nothing from the lower part of the fundus, and the question arose as to whether it was a tumor or a simple separation of the retina. There was no pain, increase in tension or other pathological sign about the eye. The diagnosis could not be made at the time because the thing was so rounded out and so dense looking that it appeared to be solid. After the passing of some weeks, however, the knob began to get smaller and another one arose in the lower part of the fundus and ultimately the whole of the projection into the vitreous settled down to the bottom of the fundus as a typical separation of the retina with undulating surface. This case looks to me like a simple separation of the retina. I do not think there would be any objection, if it came to a question of enucleation, to introducing a hypodermic syringe and getting out some of the fluid that may be causing the tumor-like appearance. This is a routine procedure in some clinics. The examination of the fluid removed would help to determine, to a certain extent, its character.

Dr. Woodruff: I would like to ask if any one noticed a fluctuation in the mass.

Dr. Ewing: I saw the case at the clinic, and to me there is a positive fluctuation on both sides of the tumor. The suspicious thing about the appearance is that to the nasal side you can follow the separation by the ordinary cloudy reflex that goes with this condition. Then comes the dark mass which begins at the nasal side of the disk and extends to the temporal side of the fundus. I have seen several extensive separations of the retina in which the separated portion was black or dark brown, and from which there were later no bad results. For this reason I would delay in coming to a positive diagnosis.

Dr. Hooss: The point of interest to me, is the fact that there is normal tension which might point against the intraocular growth. If this be a detachment of the retina, it seems that the refraction would not be hypermetropic. Also, there

is no history of injury. I think these are interesting points to be considered.

Dr. Green: In the patient with the detachment of the retina, I would suggest that transillumination might clear up the mystery. I should like to ask if there was a suspicion of cysticercus in anybody's mind? Possibly the withdrawal of the subretinal fluid might clear up the diagnosis in the event of cysticercus. There has recently been discovered a blood test for cysticercus which has been applied to a few cases abroad, but the results have been so unreliable that the test cannot, at present, be regarded as of much help in diagnosis.

Dr. Shahan: I do not think the Von Pirquet test alone is enough upon which to base a diagnosis. It is not entirely dependable, especially in patients her age. I would like to ask the doctor if there were any other signs of tuberculosis?

Dr. Green: I agree with Dr. Shahan. A positive Von Pirquet does not warrant a diagnosis of tuberculosis in an individual of this age, 16. The more I see of this type of choroiditis, the more I am convinced that tuberculosis is frequently the cause, but I will not venture on a positive diagnosis unless I get a reaction, local and general, to the diagnostic injection of tuberculin. Two or three cases have recently impressed me with the value of carrying out systematically this procedure: no reaction occurring after the first two injections (respectively 1 mgm. and 3 mgm.), but a positive reaction showing up after 10 mg. injection. For diagnosis, not only the general, but the local reaction is necessary.

Dr. Ewing: I saw this case on the second day. It was then in its incipency and, judging from the clinical picture it presented, there was no question as to the cause of the swelling. The patient was immediately put in the hands of the Washington University medical clinic service. As everything there is managed with the greatest care, I have no doubt but that she has received correct treatment in every respect. Another thing, the disease is subsiding and the patient is steadily improving on the regular tuberculin treatment.

Dr. Woodruff: In addition to what Dr. Ewing has just said, the patient was sent back from the medical clinic at Washington University and there was no question about the diagnosis of tuberculosis. The family history is positive, and the typical appearance and the general examination show the presence of tuberculosis. I think we have taken the position that it is

tuberculosis on good grounds, and there is not much room for doubt as to the diagnosis, i. e., a tubercular choroiditis.

Dr. Green: I fear my position has been mistaken. I agree with the diagnosis of tuberculosis of the choroid, on clinical grounds, in the patient presented. Too much stress, however, has been laid on the fact that the Von Pirquet was positive as though that fact was all sufficient to clinch the diagnosis. Clinicians are now in general agreement that the sole reliable test of tuberculosis in adults is a positive, general and local reaction to diagnostic injections of tuberculin. Where it is possible to make a positive differential diagnosis as between a tuberculosis and a syphilitic process, we are derelict in our duty to the patient if we do not exhaust every diagnostic means to determine the exact nature of his trouble. This is particularly true in ocular tuberculosis, where tuberculin therapy has had some of its greatest triumphs.

Dr. Hooss: I would like to know if it is perfectly safe, i. e., the technique in using tuberculin as 3 mm., 5 mm., or 10 mm. at so short intervals. Dr. Green replied that it is perfectly safe.

Dr. Shahan: As to the use and proper doses of tuberculin, there has been some disagreement. Some rather disastrous results have been reported following large initial doses, so that in such cases as I have had anything to say about, I insist on the internist beginning with extremely small doses. One ten-millionth of a milligram is enough to start with, and this should be increased so gradually as to produce a minimal general and local reaction, or possibly none at all.

Dr. Parker, in closing: In answer to Dr. Shahan's question in the differential diagnosis, this man presented all the picture of a luetic. He had the rash, also had the local lesion, and to my mind there was no question about it. As for the tuberculous patient, as I said, we had a Von Pirquet made which was positive, and she has been put on tuberculin and has been gaining ever since. No Wassermann was made, but I suppose it should have been made. She is now under the care of Dr. Fischel.

### **An Artificial Eye for Laboratory Use.**

DR. JAMES MOORES BALL:

This artificial eye is for use in the physiologic laboratory and is designed to show the effect of lenses upon rays of

light. The idea of demonstrating refraction in this way is not new. You are doubtless familiar with the Kühne eye, consisting of a water tank with glass sides. A curved surface at one end represents the cornea, back of which is suspended a double convex lens—representing the crystalline body. There is a movable screen for the retina, an iris-diaphragm, a cap to neutralize the curvature of the cornea and a cylindric lens to represent astigmatism. While the Kühne eye is not inexpensive, the chief objection to it lies in its liability to get out of order. The adjustable crystalline lens and iris-diaphragm are suspended in water and soon deteriorate.

The apparatus which is here shown consists of a vertical tube to contain the luminous body, a horizontal tube to hold the lenses, and an ordinary aquarium tank. The vertical tube presents a bulging area in which is placed a simple concave mirror made of tin. The light is placed at the principal focal point of the mirror. The effect of this mirror is to make rays of light parallel. The horizontal tube is cut lengthwise and its parts work on hinges. Attached to the lower segment of this tube is a rod on which the lens-carriers slide. These carriers and the horizontal tube have been made of the proper size to permit the use of lenses of the ordinary trial case. The tank is filled with water to which a few drops of fluorescein or of creolin should be added, in order that we may trace the rays. The retina is represented by a tin fundus on which, if you wish, a macula and nerve-head can be painted. Several supports for lenses to be suspended in the tank are also provided. To increase the efficiency of the apparatus an iris-diaphragm should be added. This can be placed at the distal end of the horizontal tube. With this apparatus one can show the action of spheric and cylindric lenses, the effect of prisms, the state of refraction in emmetropia, hypermetropia, myopia and astigmatism, probably with better results than can be had from the use of diagrams alone. If desired, the tank can be used as a smoke box such as we find in the artificial eye described by W. T. Porter and made by the Harvard Apparatus Company.

*DISCUSSION.* Dr. Green: I should like to ask Dr. Ball whether his idea of the water box is original or whether it was adopted from some other schematic eye. As I understand, the Porter eye has a smoke box.

Dr. Ball: The Kühne eye has a water box, so the idea is not original.



**Demonstration of Patient.**

DR. HARDY:

This case is somewhat of a companion to the first one of Dr. Parker's. It is up chiefly for diagnosis. He gives a history of having become suddenly blind in the lower field, two years ago, and then later in the whole field. He has central vision of direction of hand movements at six feet, but to the temporal side he has hand movements at two feet. Several gentlemen have looked at it and have been unable to make an exact diagnosis as to causation. For that reason I thought it worth while to present to the society tonight. The case is one of detached retina.

No discussion.

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**THE OXFORD OPHTHALMOLOGICAL  
CONGRESS, 1912.**

By SYDNEY STEPHENSON, D. O. (OXON).

HONORARY SECRETARY OF THE CONGRESS.

The fourth annual meeting of the Oxford Ophthalmological Congress was held at Keble College, Oxford, on July 18 and 19 last. The weather was bright, and the Congress as usual proved to be a very successful affair. The programme, a full one, kept the members fully occupied during the two days of the meeting. In the Department of Human Anatomy and Physiology belonging to the university, which lies but a stone's throw from Keble College, addresses, all of commendable brevity, were delivered by Professor Straub of Amsterdam, Dr. W. B. Marple of New York, Dr. Hanford McKee of Montreal, and Drs. Thomson Henderson of Nottingham and S. E. Whittall of Oxford. In accordance with the custom of the Congress, the addresses were followed by no discussion.

The Professional Museum, also held in the Department of Physiology (kindly lent for the purpose by Professor Francis Gotch, F. R. S.), included many interesting exhibits. Pathological specimens were demonstrated by Mr. Sydney Stephenson, Mr. Russ Wood and Mr. P. H. Adams. Ingenious optical appliances were shown by Dr. Ernest E. Maddox, Dr. J. Burden-Cooper, Mr. H. H. B. Cunningham and others. Dr. A. J. Balfantyne of Glasgow had an extensive set of coloured drawings made by himself illustrative of many diseased conditions of the fundus oculi. He also showed an aseptic drop bottle of ingenious construction. The exhibit by Mr. H. S. Elworthy of

Ebbw Vale, Mon., deserves a word of separate description. It dealt mainly with geological specimens concerned with mines and mining in connection with miners' nystagmus, and included samples of house and anthracite coal, tin ore, various metals, and rock. Mr. Elworthy also demonstrated the "holophane lumeter," a new instrument for measuring illumination in mines; a set of coloured wools for testing colour in mines; and an apparatus for standardizing colour tests. Another exhibit was by Dr. T. Llewellyn of Bargoed, namely, a series of lantern slides dealing with miners' nystagmus. Unusual or interesting cases were shown by Mr. Russ Wood, Mr. Charles Killick, Mr. Arthur C. Roper and Mr. P. H. Adams. The anomalous cases of miners' nystagmus brought by Dr. T. Harrison Butler attracted no little interest, and led to no little discussion. The *clou* of the Professional Museum, however, lay in the 250 coloured drawings of mammalian and reptilian eyes exhibited by the ophthalmic artist, Mr. A. W. Head, F. Z. S. They disclosed many surprising variations of structure. An album garnished with photographs of the artist at work on the eyes of the cobra, the boa constrictor, the tiger cat, and many another wild and fearsome animal attracted great attention and excited no little amusement. Other exhibits included new ophthalmoscopes, retinoscopes, tests for colour-blindness, and other instruments and appliances. Dr. S. E. Whitnall showed an interesting series of anatomical dissections to illustrate, among other things, bony stricture of the naso-lacrimal canal. The stereoscopic photographs of various pathological conditions exhibited by Mr. P. H. Adams were very beautiful examples.

The Commercial Museum contained the latest things in the way of surgical instruments, optical appliances, lenses, microscopic accessories, and so forth. Gullstrand's demonstrating ophthalmoscope was on view. By means of that instrument an image of the fundus oculi was to be obtained of singular purity, since it is free, or almost free, from reflexes.

On the second day of the Congress an animated discussion on miners' nystagmus (neurosis), opened by Dr. T. Harrison Butler, was held at the Eye Hospital, which lies about half a mile away from the headquarters of the Congress, Keble College. The discussion had brought together a number of men from the mining districts of England and Wales thoroughly with the subject in hand. It was no mere academical discussion. The speakers thoroughly understood their subject. The

following, among others, took part—Dr. J. Court (Staveley), Dr. H. Tomlin (Shirebrook), Mr. H. S. Elworthy (Ebbw Vale), Mr. H. H. Folker (Stoke-on-Trent), Dr. T. Llewellyn (Bargood), Mr. S. McMurray (Stoke), Dr. A. C. Norman (Sunderland), Mr. N. C. Ridley (Leicester), Mr. J. Jameson Evans (Birmingham), Mr. Bernard Cridland (Wolverhampton), Mr. R. J. Coulter (Newport), and Mr. Stanley Riseley (Sheffield). As the outcome of the discussion, the following resolution was unanimously passed:

*"That in the opinion of the Congress, the character of the illumination is the chief factor in the production of miners' nystagmus, and that a Departmental (i. e., Governmental) Committee should be appointed to make enquiries into, and to report upon, the exact conditions under which the disease occurs."*

The official dinner of the Congress, presided over by the warden of Keble College, was held on July 18. Other social arrangements included a garden party at New College, and visits to the various colleges and halls for which ancient Oxford is famed.

There was a large attendance, and many of the visitors came from over-seas. From the United States came Drs. W. B. Marple and J. A. Andrews (New York), Dr. Howard F. Harsell (Philadelphia), Dr. Miles Standish (Boston), Dr. Greene (Dayton, O.), and Dr. W. Likely Simpson (Memphis, Tenn.). Canada was represented by Dr. Hanford McKee of Montreal. The Continent of Europe sent Professor Straub (Amsterdam), Drs. H. Coppez and van Lint (Brussels), Dr. Brandes (Antwerp), Dr. Verrey (Lausanne), and Dr. Leibrecht (Hamburg).

It should be added, finally, that various operations upon the eye were performed on the first afternoon of the Congress at the Eye Hospital. Among the operators were: Dr. van Lint, Mr. Charles Higgens, Dr. A. Nimmo Walker, Mr. N. Bishop Harman and Dr. T. Harrison Butler.

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THURSDAY, JUNE 13, 1912.

MR. J. B. LAWFORD, F. R. C. S., PRESIDENT, IN THE CHAIR.

Mr. Nettleship explained the pedigree of four families containing colour-blind members with certain unusual facts connected with them. They all contained one or more colour-blind females. According to the Mendelian scheme of inher-

itance where colour-blindness is found in females it was to be expected that the father will have been colour-blind and that if she had sons all of them will be colour-blind. A congenital digital deformity, crooking of the little finger occurred in two of the colour-blinds and one of the normals in direct descent. A similar condition he had noticed in some other members he had previously found in another pedigree of colour-blindness which he had published. Two of the pedigrees showed a pair of female twins in each of which one was colour-blind and the other was not. He mentioned that the only other recorded case was one by Reber of male twins. In one of his own cases the twins were probably "similar" for they had a common placenta and both children were almost exactly alike. The tests he used for the detection of the colour defect were wools, Nagle's test and the spectroscope. In the other pair of twins the resemblance to each other was not so marked and it is very doubtful if these were "identical" twins. He discussed some possible explanation to account for these cases. Various other points in the pedigrees were mentioned and discussed. Mr. Nettleship also read an account of a pedigree of colour-blindness in a family worked out by Mr. C. H. Usher (Aberdeen). The pedigree showed the union of two unrelated stocks both containing cases of colour-blindness. A colour-blind male married a normal female who presumably carried the condition. Her family consisted of three sons, two of whom were colour-blind, and five daughters who were all healthy and who showed no defect in this respect. Mr. Nettleship also read a paper on Pedigree of Hereditary Cataract, part of which had been previously published in the Transactions of the Society, Vol. 29. As the pedigree had been more fully worked out the whole was republished. There were 17 cases of cataract occurring of which nine were males and eight females, while others showed vacuoles in the lens. The descent was uninterrupted from parent to child in every case so that it behaved as a Mendelian dominant, the cataract never appeared in the issue of a normal member of the stock. It commenced in a well defined posterior polar variety at various ages between childhood and middle life, it became more or less complete if left alone, some had been needled at an early age. Some of the results were good, but some left dense capsular opacities. "Anticipation" or Ante-dating," had not occurred with regularity.

Dr. Edridge Green spoke of the greater prevalence of colour-blindness among women than was formerly thought, and proceeded to show how very defective Holmgren's colour-vision testing was in detecting colour-blind persons. He strongly advocated the lantern test. Mr. Mould referred to an interesting case of his own of family colour-blindness. Mr. Malcolm L. Hepburn read a paper on "Inflammatory and Vascular Diseases of the Choroid" and showed diagrams and drawings to illustrate it. He discussed the present method of classifying diseases of the choroid and gave a general description of changes which occurred in all inflammatory foci in the choroid. He explained pathologically how loss of function of the retina was brought about, and suggested an anatomical classification of the cases. He described the following clinical varieties of old choroiditis and the effect that each form had on visual function.

(1) Disseminated choroiditis, (2) Diffuse, (3) Deep patchy, (4) Superficial patchy and (5) Macular choroiditis.

He discussed the following vascular diseases of the choroid (1) Retinitis pigmentosa, (2) Haemorrhagic retinitis, (3) Emboli, thrombosis and endarteritis, (4) Degeneration. He finally adduced evidence in support of a localized choroidal vascular supply from cases shown and described.

C. Devereux Marshall, F. R. C. S., Clerk.

In the county of Vas, trachoma has prevailed this year to such a degree that the medical board of the county had to ask the minister of public health to appoint two special physicians solely to treat trachoma. Whereas there were in the last year 741 trachoma patients, in the first half of this year they numbered 850. It was discovered recently that trachoma is introduced into the villages chiefly by discharged soldiers, the army being so much infected that, as mentioned in a previous letter (May 4, 1912, p. 1388), regiments had to be formed from trachomatous soldiers and officers for the sake of isolation. Even this measure was of little avail, because the soldiers acquire trachoma voluntarily, running the terrible risk of losing their sight in the hope that they will be discharged from service, because even after the formation of trachomatous companies and regiments, soldiers with severe or incurable cases have to be discharged.—Journal A. M. A.



## NEWS ITEMS.

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. and Mrs. T. H. Shasted have returned to Marion, Illinois, after a summer in Port Arthur, Canada.

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Dr. John B. Ellis of Chicago has been appointed consulting ophthalmologist to the State Training School for Girls.

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Dr. Watson Gailey of Bloomington will leave in November for Europe, where he will take up the study of surgery.

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Dr. W. Moore Thompson, Tulsa, sailed for Europe in August to spend a year in the study of the eye, ear, nose and throat in Vienna.

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Drs. R. A. Greene, S. E. Hopkins, E. M. Anderson and W. S. Frost have volunteered to serve on the consulting staff of Spokane County.

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The New York Eye and Ear Infirmary recently received a bequest of twenty-five thousand dollars through the will of the late James Brady of New York City.

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Dr. Charles B. Meding of the Harlem Eye, Ear, and Throat Hospital sailed for India September the first. After studying cataract extraction at Amritsar, he will visit China and Japan.

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On August first the St. Louis Eye, Ear, Nose and Throat Hospital was opened at 2329 Locust Street, St. Louis, Mo. Dr. Selden Spenser is president of the staff; Dr. Wm. H. Lueddle, secretary; Dr. F. C. Simon, treasurer, and Drs. H. C. Crevering, E. T. Senseney, F. E. Woodruff, John Green, Jr., and J. F. Shoemaker are on the active staff.

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Dr. Frank Brawley of Chicago won the championship of the Physicians' Golf Association of Chicago at the annual tournament held at the Beverly Golf Club in September. On the evening of the last day of the tournament the annual dinner was given. The new officers for 1913 are: President, Dr. Wil-

liam Wilder; secretary-treasurer, Dr. W. A. D. Montgomery; directors, Drs. Franklin Martin, Arthur Reynolds and Frank Brawley.

A vigorous campaign has been started by Dr. E. L. Roberts, public school inspector in Nashville, and Prof. J. J. Keyes, superintendent of education, for the eradication of trachoma from public schools of the city. In this work they have the co-operation of the City Board of Health and Dr. W. E. Hibbett, city health officer. More than 2 per cent of the white children in the schools are said to be affected with the disease which, however, very rarely attacks colored children.—*Journal A. M. A.*

To carry out his theory that steps for all-around betterment of prisoners should be taken, beginning with physical conditions, Warden Johnston of Folsom, Cal., penitentiary has had thirty-two prisoners examined by eye and ear specialists.

Jake Oppenheimer, "The Hyena," under sentence of death, will be fitted with a pair of glasses. The warden said that Oppenheimer was pleased with the result, as his vision had been much impaired in the preparation of a book he is now writing, entitled, "The Thoughts of a Condemned Man."

Another prisoner will be fitted with an artificial eye, on the theory that any improvement in a prisoner's looks will heighten his self-respect and make him more amenable to efforts for his reform.

#### THE CRISIS IN OPHTHALMOLOGY.

Paris, Aug. 16, 1912.

The serious outlook for ophthalmologists in France was discussed at the recent general assembly of the *Syndicat des oculistes Français*. Dr. Aubineau, of Brest, reviewed the many causes of the present crisis. In the first place, the greater attention given to hygiene in all classes of society tends to decrease the number of cases of ocular disease not only by diminishing the chances of infection and contagion, but also by inclining the individual to seek medical aid for the slightest trouble of the eyes. Cases of conjunctivitis, keratitis and even of iritis are therefore treated at the beginning, when they can be cared for by the family physician. This is fortunate from a broad point of view, but the result is a constant diminution of the number of cases for which the oculist is consulted. Moreover, the surgical side of ophthalmology, which formerly was an important

source of revenue, is becoming more and more restricted, whereas in such specialties as otology and rhinology operations grow more frequent. The increase in the number of oculists and ophthalmologists, by encouraging early attention to ophthalmologic troubles, makes surgical cases more rare. Then, too, ophthalmologic knowledge is becoming more general in the medical profession. The new program of medical studies makes the ophthalmologic *stage* obligatory, which will make the general practitioner more competent and still further increase the natural tendency to eliminate the specialist. Charlatanism and illegal practice of medicine likewise constitute important factors. According to Dr. Aubineau, the most serious injury to oculists from illegal practice of medicine is caused by the pharmacist, who not only dispenses ophthalmologic remedies but also prescribes and sells glasses. The new profession of pharmacist-optician, springing up in many localities, is detrimental to oculists. The most important cause of the crisis in the specialty is professional overcrowding, general as well as special. There are few or no vacant posts, and the diminution of appointments leads young physicians to abandon the general practice of medicine for a specialty which appears more agreeable and more remunerative. The fact that general practitioners themselves are subject to severe competition tends to make them crowd out the specialist. The number of oculists is increasing so that ophthalmology is even more overcrowded than general medicine. This is a natural result of the present facilities for ophthalmologic studies. Ophthalmologic services, with assistants, internes and externes, are multiplied in the hospitals. Moreover, the *facultes* and *ecoles de plein exercice* are continually preparing future oculists.

Some of these factors are due to social and scientific progress and therefore cannot be combated, whatever may be their consequences. Accordingly, Dr. Aubineau believes that professional overcrowding must be opposed by enlightening the public with regard to the actual situation of the physician in general and the specialist in particular.—Journal A. M. A.

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Wanted: Western Ophthal., Otol., Laryngol. and Rhinol. Assoen. The Transactions of the Ophthalmic Section of 1st and 2nd sessions, corresponding to the years 1896 and 1897. Two dollars will be paid for each copy. Address Publisher of the OPHTHALMIC RECORD.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Patillo (P.-G.) J. F. Burkholder (E. E. N. T.)	G. W. Mahoney (Poli.) *Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Poli.) Richard S. Patillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Patillo (P.-G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Poli.) E. J. Brown (E. E. N. T.) C. H. Francis (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Bussey, N. W. U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Thos. Faith (E. E. N. T.) W. A. Fisher (E. E. N. T.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. F. Gamble (Inf.) J. B. Loring (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) H. A. Young (Inf.) Wm. H. Wilder (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) L. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) W. K. Findlay (Inf.) Wm. F. Gamble (Inf.) J. B. Loring (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) H. A. Young (Inf.) Wm. H. Wilder (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) L. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. F. Gamble (Inf.) J. B. Loring (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) H. W. Woodruff (Inf.) H. A. Young (Inf.) Wm. H. Wilder (Inf.) *H. W. Woodruff (Inf.) N. A. Young (Inf.) Francis Lane (Rush) L. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) W. K. Findlay (Inf.) Wm. F. Gamble (Inf.) J. B. Gardner (E. E. N. T.) E. J. Gardner (E. E. N. T.) *Paul Guilford (St. Luke's) *Cassy Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) W. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P. & S.) E. K. Findlay (P. & S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. F. Gamble (Inf.) J. B. Loring (Inf.) D. A. Phillips (Inf.) *Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	*J. E. Harper (P. & S.) *W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)	W. Allen Barr (C.C.S.)	W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pusy (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Monroe Streets.	Poli.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 182 Washington Blvd.	P.-G.: Postgraduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

# THE OPHTHALMIC RECORD

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OF OPHTHALMOLOGY

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## ORIGINAL ARTICLES.

### A CASE OF THE JUVENILE FORM OF FAMILY AMAUROTIC IDIOCY.

BY H. GIFFORD, M. D.

OMAHA, NEB.

In opposition to the well-known Tay-Sachs, or Infantile form of Family Amaurotic Idiocy, which begins in early infancy and leads to death almost invariably before the fourth year, with, in nearly all cases, a white or gray ring surrounding a red spot at the fovea, Vogt, in 1905, pointed out that there was a juvenile form of family amaurotic idiocy beginning, not in infancy, but in early youth; leading slowly to blindness, frequently with paralysis, and death after several years, and showing no predilection for the Jewish race.\* As this form has received very little attention in America, the following new case seems worth reporting.

Emma C., aged about 11 years, brought to me April 2, 1905, with the following history: Up to the age of about 7 years she developed in the ordinary way, but at that time her mind and sight began to fail and both have continued to grow worse. Patient is a rather good-looking girl of fair size, giving the first impression of being ordinarily bright; but further investigation shows that she is an imbecile, unable to give intelligent answers to simple questions. She never talks unless spoken to, when she can be made to say a few incoherent words. She remains quiet or playing with childish things all day. She sings gently to herself, keeping the tune well. Subjective tests impracticable, but she sees enough to find her way about easily. Objectively, the eyes are slightly divergent; fixation eccentric or uncertain; slight constant nystagmus; otherwise externally nor-

\*While a large majority of the cases of Tay-Sachs disease occur among Jews, it is by no means confined to that race. Beside a number of cases among Aryan Gentiles, at least one case has been reported among the Japanese.



mal. The media are clear except for fine dustlike opacities in the vitreous; nerves somewhat atrophic; vessels rather small; general tone of fundus dark gray, which on bright illumination with the direct method becomes a finely mottled brownish-yellow; down and out in the right eye, down and in in the left eye are somewhat bone-corpusele-shaped masses of pigment, but these are larger than those generally seen in retinitis pigmentosa. In the quadrants mentioned they reach from the periphery nearly to the centre of the fundus. She was admitted to the hospital for the incurable insane at Hastings, Nebraska, where she died in 1909. She was bed-ridden and absolutely blind for some months before she died and had some attacks resembling epilepsy, but which the attending physician thought were due to cardiac dilatation. Owing to the mediaeval character of some of our Nebraska rules, I was unable to get a post-mortem examination, even of the eyes.

An older brother of this girl (not seen by me) had a similar history; his mind and sight failed at about 7-8 years; he gradually became absolutely blind and imbecilic, and had epileptoid seizures for several years before his death, at the age of 20. There are five other children in the family all healthy and fairly intelligent. Two others died in infancy. The father was insane for the last few years of life and died at the age of 45 years. The mother lives and is healthy, but is of a low grade of intelligence.

I have also come across another set of children which probably belongs on the outskirts of this group, although the possibility of a hereditary influence and the slight tendency to progression make the cases decidedly atypical. There were four children in the family who seemed to be normal up to the age of seven or eight. They learned to read and write readily, but were never able to do anything with mathematics nor to progress further than the second or third grade, at which point they were obliged to drop out of school, defective vision becoming apparent about the same time. In the fifth child the trouble began somewhat earlier.

1. Mary, aged 18, looks fairly well now, but is extremely dull mentally. Formerly could read and write, but now only knows three or four letters. Accurate test of sight not possible, but vision about 20/50 each eye, not improved by glasses. Nerves decidedly pale and vessels about half the normal size; otherwise fundus normal.

2. Emma, aged 16, mentally rather brighter than No. 1, but gives the impression of a child of about six or seven years. Her sight has been failing rapidly for the last two years, not extra good before that. Right eye vision 20/200, not improved by glasses, left eye vision mere perception of light. Central scotoma right eye; ophthalmoscopic examination shows disks about normal; slight irregularity of pigment at each fovea and irregular patches of atrophy with deeply pigmented borders at the periphery.

3. Anna, aged 14. She is the brightest of the family, but has never been able to go beyond the third grade in school nor to master the simplest mathematics. Is still going to school, but progress very slow. Vision 20/50, each eye, not improved by glasses. Disks rather pale, but no other perceptible anomaly in fundus.

4. Richard, aged 11. Knows his letters and can read fairly well, but can do no mathematics. Looks bright, but never has been so bright as the Nos. 2 and 3. Vision 20/30 plus, each eye; not improved by glasses. Fields normal. Disks possibly a trifle pale, but fundus otherwise normal.

5. Freda, aged 7, knows her letters, but seems more dull mentally than any of the others. Nothing abnormal to be detected in the fundus.

The father of the family was normal, but was killed several years ago. The mother has always had poor sight and is very dull mentally. Vision is fingers at 4-5 feet, each eye. Fields very small, ophthalmoscopic examination shows high myopia, large zone of atrophy around nerve. Vessels very small.

No. 2 in this group is the only one examined by me personally, for the history and the examination of the others I am indebted to my colleague, Dr. Potts.

It was plain to me on seeing the first of the cases that it belonged in a different class from the Tay-Sachs cases, and it was not long before I learned that F. E. Batten (1) and Mayou (2) had, shortly before, reported similar ones. Batten's patients came from a family of 7 children, of whom 5 were normal. The other two were girls, aged 10 and 7 years, who developed normally to the ages of 4 and 6 years respectively; then sight and mind began to fail and kept getting slowly worse. When seen by Batten the eldest had "fits" and was quite demented. The ophthalmic examination (made by Gunn) showed pale disks, with small vessels and considerable pigmenta-

tion in the region of the yellow spot. Vision not taken; fixation eccentric; nystagmus on lateral movements; no paralyses. The younger child was semi-idiotic; vision extremely defective; fine nystagmus at times; disks slightly pale; peppered pigmentary changes all over the retina, the result probably of old retinitis; at each macula there was a reddish black spot about 1/3 disk-diameter, larger and more defined in the right than in the left. The spot was irregular in shape and the margin not very sharply defined. The region immediately surrounding it was paler than the rest of the fundus and more atrophic looking; vessels rather small.

In 1910 Batten reported to Oatman (*vide infra*) that sight and mentality continued to decrease, although when they died, a few years later, they were not absolutely blind. No autopsy was obtained, but as the hospital in which they died had no record of any particular disease it is to be presumed that they died of the general marasmus produced by the nervous degeneration.

Mayou's patients were three children in a childship of six. Parents first cousins; suspicion of syphilis in mother. Mental powers and sight began, in all, to fail at about the seventh year. The oldest, aged 10, showed disk of good color, but very sharply defined down and out; small reddish black spot at each macula, surrounded by a coarsely granular pigmented condition extending for some distance into the fundus; no visible changes in the extreme periphery; vision fingers at two feet. The next child, aged 9, showed about the same conditions, somewhat less marked; vision not obtained. The third child, aged 8, showed only a faint stippling at each macula; vision, 6/36. In a letter to Oatman in 1911, Mayou reported the eldest to be a complete imbecile, the others to be slowly deteriorating mentally, but none of them wholly blind.

In the discussion following Mayou's report, Stephenson said that he had a similar case in a girl of 12; and that Still and Gunn had reported a similar case to the society.

In Vogt's original paper, in which it was first suggested that there was a juvenile form of family amaurotic idiocy, he reported six cases; two in one family, one in another, and three in a third; all of the same general type, characterized by normal development up to the 4th-7th year; then gradual onset of blindness with optic nerve atrophy (and, in one case only, pigment deposits in the retina); dementia, generally with more or less paralysis; and death from 2 to 15 years later. The majority of

the patients lived about 15 years, one of them living at the time of Vogt's report, but dying later at the age of 23. The second of these families is most interesting as showing a tendency toward the Tay-Sachs type. The child seen by Vogt showed the first signs of the disease at 4 years, and died three years later. But there were two other children in the family who evidently had the same disease; one of these began to fail at 4 years and died two years later; while in a third child the disease began in the 2nd year and developed so rapidly that blindness and death occurred in the third year. Vogt also reports a childship of nine in which dementia and marked failure of sight, beginning at from 10-15 years afflicted three of the children. In one of these children the eyes were examined three years after the blindness began and the optic nerve and retina were found normal. She and one other child could see large objects, and showed no motor paralyses; while the eldest, a boy aet. 24, was considered by his family to be completely blind and had spastic paralysis of hand and feet. Vogt's conclusion is that while the Tay-Sachs disease and the juvenile form of family amaurotic idiocy represent only different degrees of the same process, the former is so sharply characterized that it may well retain its commonly accepted name, while the second group may perhaps be designated the juvenile form of family amaurotic idiocy, as opposed to the infantile form. Beside Vogt's original article he has since then published two valuable comprehensive reviews of the subject (4) and (5), in which he reasserts his belief that the two forms are varieties of one disease.

Higier's cases, the only Jews in the group, though unusually mild, were the first reported ones that can be properly regarded as belonging to this class. Patients were four sisters, all living at the ages of 24, 20, 18 and 17 respectively. They showed normal development until the ages of 12, 10, 9 and 7 years, when the intelligence and sight began to fail, and went on to moderate amblyopia and well marked, but not extreme, idiocy, with spastic paralyses and atrophy of the optic nerves. H. described these as cases of familial cerebral diplegia.

He also reports another family (7), in which the parents were close relatives; the first two children having simple optic nerve atrophy, sight beginning to fail in the first year, but no other nervous or mental disturbance. The next child was normal to the fourth year, but then showed beginning diplegia; use of upper and lower extremities difficult and uncertain.

speech slow and monotonous or at times explosive. Mild imbecility and amblyopia, optic nerves atrophic. A still younger child, seen at the age of thirteen months, showed typical Tay-Sachs idiocy with characteristic ophthalmoscopic appearance.

The cases of Spielmeyer (8), in which the report on the eyes was furnished by Stock (9), are of interest as the first in which a careful microscopic examination was made, both of the brain and of the eyes. The patients were four children in whom there was a possibility, but not a strong probability, of hereditary syphilis; the father stating that he was infected after his marriage. The first child was healthy and remained so, the next four developed normally to the sixth year, when they began to show symptoms of mental degeneration with epileptic attacks, leading to complete imbecility and blindness. Three of the children died at the first year of puberty with marked tuberculosis of the lungs, the fourth child was still living at the time of the report. The ophthalmic examination showed in one case, the arteries somewhat small; fine light patches in the epithelial pigment at the periphery; with a few very fine white points. No pigment displacement into the retina. Some years later the same case showed absolute amaurosis; papillae somewhat paler than normal; vessels normal at the centre, but somewhat thin at the periphery; extensive retinitis pigmentosa of the bone corpuscle type. Similar conditions were found in two other cases, while in the fourth, Stock describes the fundus as normal except that in the periphery there were a few fine pigment spots, with complete amaurosis, and no pupillary reaction. The first examination of some of these children at Heidelberg showed signs of iritic adhesions, which, however, were not seen by Stock when they were examined later; and in one of the children the vision improved somewhat when first treated with mercury.

Spielmeyer and Stock propose the name Family Amaurotic Dementia, and on the ground of the peculiar pathological findings (see below) insist that they belong in an entirely different class from anything hitherto reported.

Ichikawa (10) reports a boy born 1900, died 1907; normal to 1905, when mind and sight began to fail. In 1906 he was totally blind and imbecile. Died of catarrhal pneumonia, during which chronic contracture of lower extremities was noticed. Eyes were normal except that the fundus seemed on the whole slightly veiled; no signs of abnormal pigment. Papil-



lae pale, but not as in tabes, rather of a dull yellowish tone such as seen after retino-choroiditis or in the end stages of retinitis pigmentosa; vessels very small; dark red spot at the fovea without surrounding zone of white, the rest of the fundus peculiarly "chagriniert." Two other children in the same family died of the same disease. Parents were cousins, no report of syphilis. Ichikawa believes that the Tay-Sachs disease is related to the juvenile group, which on the other hand runs off into retinitis pigmentosa with idiocy, and still farther on into ordinary retinitis pigmentosa. In a later paragraph he opposes the sharp division made by Stock and Spielmeyer, on the ground that all of the elements of the retina eventually degenerate. He makes the mistake, following in this an abstract in the *Klinische Monatsblätter für Augenheilkunde* (XLII, 1, p. 283), of ascribing to the patients of Mayou the typical Tay-Sachs ophthalmoscopic picture.

Wandless' (11) family contained three children, mostly of Irish descent, parents healthy. The eldest died at the age of fourteen, normal development to the age of 7, when vision and soon after mentality began to fail; bed-ridden and extremely emaciated for some time before death. The second boy was well until the eighth year, when sight began to fail, and fifteen months later failure of mind was noticed. At time of report was twelve years old, could see only large objects; nystagmus. At the first examination the retina was oedematous; choroid congested and optic nerves atrophied. Later on oedema of retina disappeared, signs of atrophy of the choroid became evident. No Tay-Sachs condition at the centre. The third child, age 8, showed slight hyperaemia of the retina and the choroid, and considerable irritability of temper.

Dr. Wandless has kindly informed me that the oedema of the retina in the second child was general, but slight, and that later on, in addition to the general thinning of the pigment, some fine abnormal pigmentation of the retina both in the periphery and in the proximity of the macula could be seen. The ophthalmoscopic changes in the 3rd child were practically identical with those of the second except that the initial oedema was more pronounced and that at the last examination no abnormal pigmentation of the retina could be observed. The second of his patients has since died, and the third is nearly blind, with progressive failure of mentality. The post-mortem examination of the first of these children by Brooks (12) showed ex-

tensive degeneration of the brain cells, similar to that observed in Tay-Sachs; together with marked changes in the adrenal, thymus and pituitary glands. The examination of the retina and optic nerve showed complete degeneration of both; the different layers of the retina could not be identified; the choroid showed no decided change.

Rogalski (13) reports a girl, normal to the seventh year; then showing evidence of deficient mentality. Eyesight failed at the age of 10 and conditions continued to get worse until she was completely blind and idiotic, with spastic paralysis. Death at the age of 26. When first examined, disks pale and opaque, bright red oval spot in centre of macula, surrounded by pigment ring; same in both eyes; vision, fingers at 5 feet. Later, ophthalmoscope showed fine brownish pigment irregularity at the periphery, in addition to the macular affection. Still later the ophthalmoscopic examination was difficult, but as far as could be seen the appearance was that of retinitis pigmentosa, cataract finally. Microscopic examination of the brain showed cell degeneration of essentially the same but not so intense a type as that observed in Tay-Sachs disease. This patient was the only one in the family thus affected, two others were healthy and one died at 14 days; but the mother died at the age of 33 and the case was so typical in other respects that it seems proper to include it in the group.

Oatman (14), apparently without considering the general group of juvenile amaurotic idiocy, proposes segregating a class which he calls familial maculo-cerebral degeneration, including the cases of F. E. Batten, Mayou, and one of Nettleship's cases, and the following cases of his own: In a childship consisting of two girls and a boy, one of the girls was normal and the other two children showed ordinary development to the ages of 6 and 7 years respectively, when failure of sight and intelligence began to be noticeable. The eldest child when first seen at the age of 12 showed in both eyes media clear; optic nerve white and retinal vessels narrow; and an area in the centre of the retina about  $2\frac{1}{2}$  disks in diameter, within which the fundus was mottled with dirty yellowish-gray spots and peppered with granular dust-like pigment. Four years later the retinal pigment was found to be greatly thinned as far as the equator, and the whole fundus much paler than at the first examination; the pigment in the macular region having disappeared entirely. The brother, aged 8 at the time of the first examination, showed

in each eye a ring of granular pigment surrounding the macula, with pigment displacement and atrophy in the enclosed area and dust-like pigment in the surrounding retina. Later on changes similar to that in the other case took place. Both children showed nystagmus, with epileptiform convulsions, and gradual development of idiocy; the older child, as Dr. Oatman has kindly informed me, having died recently, apparently from an extension of the degeneration within the brain. In both of these children the failure of sight began with a central scotoma with normal peripheral fields, but the sight was eventually reduced to perception of large objects. He considers that the cases of R. D. Batten (15) and Stargardt (16) represent a milder form of the same affection, which he refers to as the macular type of the disease. In these cases the mind was not affected, but macular degeneration, similar to that of the cases already cited, began about the age of puberty and progressed very slowly. In one of Stargardt's cases the disease began at the age of 8 and in the case of Leber's (cited by Stargardt) at the age of 7. In Leber's case, when first seen, the macula showed fine alterations in the central retinal pigment, and three months later showed the pigment at the periphery of the fundus much rarefied.

Kuffler (28) reports four children in a family of seven, born 1900, 1901, 1904, 1906. The first three showed blindness and imbecility beginning at about the 6th year, with optic atrophy and slight pigment displacement all through the retina, but rather more marked at the macula. The 3rd of these showed almost no mental deficiency and the 4th was apparently normal, mentally, but the fundus showed beginning atrophy in upper half of disk and fine black and yellow mottling of the retina, especially marked at the periphery; no change at the macula.

Kuffler's article is an excellent one, but it is liable to cause some confusion through the inclusion, without sufficient comment, of several cases which do not belong in the group. (Huismans, Pelizaeus, Mülberger, Stargardt.)

Firūkova (29) reports a brother and sister, aged 9 and 6½ years. Disease began at age of 6 years. The boy is markedly imbecilic, shows atrophy of nerves and marked atrophic changes in the retina, especially in the region of the macula. The symptoms are much less marked in the younger sister, who shows changes in the nerve and macula in the right eye only; vision reduced; left eye healthy.

**Cases Showing Some Similarity to but Marked Differences  
From the Typical Juvenile Form of Amaurotic Idiocy.**

Dereum (17) reported three brothers, aged 11, 6 and 2 years. These children were normal until the ages of 16 months, 6 and 2 years respectively; after that they developed spastic paresis of all of the extremities with imbecility. The eye grounds could not be examined, but vision appeared to be somewhat defective.

Gordon (18) reported a brother and sister, aged 13 and 9 years. The girl began to walk and talk about three years of age, when it was noticed that her sight was poor. Her intellect never developed beyond that of a small child; marked adiposity, optic nerves and retina atrophied. Rotation of eye-ball restricted in all directions. Vision, fingers at 5 feet. Oval area including fovea much redder than rest of the fundus.

In the case of the brother, his vision was noticed to be poor at the age of twelve months, was very slow to learn, has been to school four years, but is still in the first grade. Vision 20/200, rotatory nystagmus, partial atrophy of disks and retina.

Hirschberg (19) reports a 15-year-old boy, well built and nourished, impresses one as being stupid, but at home seems fairly intelligent and does all ordinary work well. Vision, 10 metre type at 1/10 metre; nystagmus; yellowish spot surrounding a more yellowish than bluish ring, complete in one eye, not quite closed in the other; edges of ring ragged on the outside, well cut on the inside; periphery full of innumerable bright spots with some fine spots of pigment; disks quite pale; vessels very small. Parents near relatives, Christians. Disease apparently not progressive.

Nettleship (20) reports several cases of family degeneration of the macula, and one of the patients was in addition feeble-minded. He suggests that these may have been very mild cases of Tay-Sachs disease, and accounts for the lack of Jews among them by the fact that many apparently Gentile families have Jewish blood. None of his cases are typical instances of juvenile family amaurotic idiocy.

Behr (30) reports six children, two of them in one family, showing double-sided optic neuritis or atrophy; central scotoma; slight spasms and heightened reflexes in the extremities, without paralysis; slight ataxy; uncertain gait; weakness of bladder and slight weakness of mind. In one case "salt and pepper" retinitis was present. Disease begins in earliest childhood or possibly is congenital; not markedly progressive.

### Cases Which Have with Doubtful Propriety Been Included in the Group.

In his paper in which the idea of a juvenile form of family amaurotic idiocy was first promulgated, Vogt included the cases of Pelizaens (21) and Freud (22); but a study of their clinical history makes it seem clear to me that there is no good reason for including them.

The cases of Pelizaens were five children in one family who in early infancy showed symptoms of a lack of co-ordination as evidenced by wabbling of the head, nystagmus, and as they developed, a general uncertainty of motion. The intelligence was reduced, but the patients were by no means idiotic, and practically the only tendency toward progression was shown in the development, in later years, of spastic paralyses. Three of the patients died at the ages of 23, 25, and 32, while two others were living, one at the age of 28 and the other at the age of 8. Vision was somewhat reduced, but the sight was fairly good, enough for all coarse work, and apparently did not get worse with advancing years. The only ophthalmic abnormality was rather pale but not markedly atrophic disks. Merzbacher (23), who has followed up the history of this family and its connections, collecting in all fourteen related cases, has made a post-mortem with microscopic examination in one case. He found the disease to be markedly hereditary, transmitted mainly to males through the unaffected mothers. He states that a number of the patients became demented; twelve out of fourteen were males. Pathologically the case showed a quite different picture from that in amaurotic family idiocy, the main change consisting in the degeneration of the medullary sheaths of the nerve fibers, in patches, in various parts of the central nervous system. The brain was not in a condition for the more delicate methods of cell examination, but nothing abnormal was found in the medullary fibres or the ganglion cells of the cortex. He protests against including this disease in family amaurotic idiocy, and calls it *aplasia axialis extra-corticalis congenita*.

Freud's cases were two brothers, 5 and 6 years old, with atrophy of the nerves, but good enough sight to read large letters; good intelligence, but diplegic; that is, they were awkward in actions and speech. Nystagmus was noted in early infancy, but the eye trouble showed no tendency to progress.

### Pathology.

The changes in the central nervous system in the juvenile



form of family amaurotic idiocy have been studied by Vogt, Spielmeyer, Behr, Rogalski, and Brooks. With the exception of Spielmeyer, all agree that the main essential primary change consists in a degeneration of the ganglionic cells, characterized by a cloudy swelling of the protoplasm, less intense than but differing only in degree from the changes so carefully studied and thoroughly described by Sachs, Schaffer and others, as characteristic of the Tay-Sachs disease. The changes in the conducting tracts are regarded as secondary. As in the Tay-Sachs cases, the vascular system is practically normal. Spielmeyer, on the other hand, while finding the swelling of the cells somewhat similar to that of the Tay-Sachs type, describes a peculiar granular deposit, sometimes pigmented, which had not been found in any other cases of amaurotic idiocy: but Behr (24), who examined the brain of one of Vogt's cases, claims to have found the same pigmentation of the cells as in the Spielmeyer cases, and believes that the reason that it has not been found in the Tay-Sachs disease is that the pigment is a late development of the degeneration which does not have time to occur in the short period of life allotted to the Tay-Sachs victims. Straüssler (25) also claims to have found it in the juvenile paralysis of hereditary syphilis, so that the condition is not strictly characteristic.

The only microscopic examinations of the eyes which I have found in the juvenile group are those of Stock, Ichikawa and Brooks (Wandless). Stock found the main characteristic to be an almost complete destruction of the rods and cones; with the optic nerves very slightly, if at all, atrophied. The ganglion cells were largely preserved, but on examining them carefully it could be seen that the cell body was swollen with the nucleus pressed toward one wall and with vacuoles present in the cell substance. The nerve layer of the retina was almost normal. The choroid was only slightly altered. The pigment epithelium showed some displacement into the retina, but was normal over large areas.

Ichikawa also found the rods and cones completely destroyed, except in one small portion of the retina; the other layers of the retina all more or less degenerated; nerve fibre layer appeared thinner than normal, but the nerve fibres stained normally by Weigert to the chiasma.

In Wandless' case, Brooks found the retina and optic nerve fibres completely degenerated. The different layers of the reti-

na could not be differentiated. The choroid showed no decided change.

In the Tay-Sachs form, as is well known, the optic nerve fibres are atrophied and the rods and cones have almost invariably been found to be normal; and if the condition found by Stock and Ichikawa should be found to be the rule in the juvenile group, it would be a strong argument for a sharp distinction between it and the Tay-Sachs group, while if it should be found to be absent from other members of the juvenile group, the argument would be for segregating the Spielmeier-Stock and Ichikawa cases into a separate group from the other juvenile cases; or finally, as Schuster (26) suggests, the main degeneration of the nervous system in the Spielmeier-Stock and Ichikawa cases may be of essentially the same nature as that in the juvenile and Tay-Sachs forms; the differences being due to a super-added influence, possibly syphilitic. The complete disorganization found in Wandless' case marks an unusual intensity in the degenerative process.

It is evident from the study of the foregoing cases that the juvenile form of family amaurotic idiocy is by no means so clear-cut a group as the Tay-Sachs or infantile form; but including the cases of Higier, F. E. Batten, Mayou, Vogt, Spielmeier-Stock, Ichikawa, Wandless, Oatman, Firukowa, Kuffer and myself, we have a class of which the prime characteristics are familiarity (as opposed to an hereditary character), and the onset, after several years of normal development, of a progressive deterioration of mentality and sight, leading in the great majority of cases to complete or nearly complete blindness and imbecility; with death from the original or some intercurrent disease in the course of from two to twenty years\*

With regard to the ophthalmic picture, the group shows little uniformity, including cases with simple optic atrophy,

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\*The length of life in a disease involving chronic imbecility must always be of secondary importance, on account of the difficulty of distinguishing between the effects of the disease and the results of deficient auto-preservation; in fact, so far as I know, it has not been proved that death in any of these cases has been due to an extension of the disease to the vital centres, however probable it may be that such was the case. The absence of familiarity also, in some cases otherwise typical, should not be given too much weight; since if the mother dies young or from some other cause stops breeding at an early age, a single case may occur in a family which is entitled to have several. I consider the case of Rogalski an instance of this, and the same may be said of the case of Schob (*Fortschritte d. Med.*, July 11th, 1912), in which the mother died in the early years of child bearing, while all of her children except two died in early infancy. Of the other two, one was healthy at 15 years; the other was normal

slight displacement, or atrophy of the retinal pigment, central or peripheral, and marked displacement of the retinal pigment, more or less of the bone corpuscle type. The cases in which the changes were almost entirely macular, if they could be considered by themselves, might justify the segregating of a group of maculo-cerebral degeneration (Oatman), but against this separation there is to be urged that cases which agree in the main feature of so remarkable a syndrome-complex as that constituted by normal development to the period of second dentition, with the onset at that time of progressive failure of sight and mentality, ought not to be separated solely on the ground of the extent or location of the retinal degeneration; especially since the microscopic examination has shown that the ophthalmic picture gives no certain criterion as to the extent of the retinal involvement; for it has been found that the rods and cones can be completely disorganized over large areas which, to the ophthalmoscope, look entirely or practically normal, and conversely, that disks which look decidedly atrophied may show no positive abnormality of the nerve fibres. In none of the cases included by Oatman have the eyes been examined microscopically, so that we have no means of telling whether much of the retina, which in these cases looked normal, was not really diseased; moreover, in Oatman's own cases the gradual depigmentation of the fundus, together with the extent of the optic nerve atrophy and the blindness, showed a tendency to involvement of the whole retina; and a similar tendency was shown in other cases, included by him (Batten, Mayou, Leber). As further evidence of a mixture of the central and peripheral types of retinal affection it may be mentioned that one of the patients in Stock's family, in which the main tendency was toward abnormal pigmentation of the retina at the periphery, there was a darkly pigmented spot at the centre of the retina; and that in the patient of Rogulski, who showed, at the first examination, only pigmentary changes at the macula, later on peripheral pigmentary changes took place so that at the last examination the general appearance, so far as could be determined,

to the 6th year, then she gradually became blind and imbecilic. The ophthalmoscope showed atrophy of the nerves with a fine uniform punctuate appearance of the retinal pigment, except in the periphery, where there were some larger pigmented spots. The child (still living) shows no light perception, but the pupils react well to light.

There was a possibility but not a decided probability of inherited syphilis in this case, and Schob emphasizes the difficulty of distinguishing between the idiopathic and syphilitic forms of juvenile amaurotic idiocy.

was that of retinitis pigmentosa, while the brain showed essentially the same changes as in Vogt's cases. We thus have the grounds for a segregation of a maculo-cerebral group reduced to the fact that in some of the cases the disease begins in the centre of the retina rather than in the periphery; but the mental condition in the other cases of the group has made it impossible to determine whether or not in some of them also, without positive ophthalmoscopic signs, the disease began in the centre.\* If it were not for previously established names we might well adopt Oatman's suggestion, with a slight modification, and describe the whole family, Tay-Sachs and all, as Familial Retino-cerebral Degeneration† with Infantile and Juvenile Forms; but the persistence of once established names will probably prevent any such change.

### The Relation Between the Tay-Sachs and the Juvenile Forms of Family Amaurotic Idiocy.

has been the subject of much discussion. Schaffer, Vogt, Behr, and Rogalski believe that they belong in the same generic group, representing different degrees of intensity of the same

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\*The difficulty of erecting a macula-cerebral group is best shown by the family of Kuffler. The oldest child showed marked atrophy; a dirty red spot at the fovea and small light yellow pigmented spots all through the periphery and, in the inner lower quadrant, clear up to the nerve. No. 2 showed at the first examination beside optic atrophy, fine yellow grayish pigment spots like pepper and salt, all through the posterior pole of the fundus, the spots being coarser at the macula and fading out toward the periphery; no large spots of pigment near atrophy. Later, beside the pigment displacement, the macula showed radiating bright yellowish stripes.

No. 3 showed optic atrophy, with fine yellow and grayish black spots all through the posterior pole, also a few larger pigment spots; later the periphery also showed fine pigment displacement, and the macular region showed a yellowish area surrounded by "a wreath of radiating rays"; just at the centre a reddish spot about  $\frac{1}{4}$  disk-diameter, finely stippled ("chagriniert"), as from an old hemorrhage.

No. 4 had no change at the macula, but other parts of the retina, especially at the periphery, showed the same fine black and yellow mottlings that characterized the other cases. In other words, here in the same family was one case with changes both at the macula and periphery with no certainty as to which began first; two cases (Nos. 2 and 3) in which the retina at first showed changes only at the posterior pole (in one of them most marked at the macula), but which later on showed changes at the periphery; while the 4th showed peripheral changes, but none at the macula.

†When we consider the ease with which slight changes in the retina may be overlooked, and that the cases of Higier and Vogt apparently were not examined by an oculist of experience, and that extensive degeneration of the retina may co-exist with an apparently normal fundus, it is probably not unsafe to assume, in the absence of microscopical findings to the contrary, that there was some degeneration of the retina in the cases in which optic atrophy alone was reported.

pathological process. The chief pathological difference in the brain is one of degree rather than kind, and while some of the eyes of the juvenile group that have been examined microscopically (Stock and Ichikawa) show a difference which Stock regards as fundamental (destruction of the rods and cones with comparative little change in the optic nerve fibres), Ichikawa regards this as a transitory difference, since in the end all nervous elements of the retina degenerate in both forms of the disease; and the findings in Wandless' case confirm this view. The early degeneration of the rods and cones can not be considered as peculiar to the Spichmeyer-Stock and Ichikawa cases, since it has been observed and perhaps is always present in retinitis pigmentosa; and Mohr (cited by Higier, *Neurologische Centralblatt*, 1901, p. 843) has found in the Tay-Sachs disease a granular substance which he regards as the remains of the pigment epithelium and the outer members of the rods and cones.

Clinically, while in the main, the infantile and juvenile groups seem to be plainly differentiated, connecting links occur, as in the family of Higier, in which one child had a mild form of juvenile amaurotic idiocy and another a typical case of Tay-Sachs. Also in one of Vogt's families, beside several normal children, there was one typical juvenile case lasting from the fifth to seventh year, another running about the same course, and a third in which the disease progressed with a rapidity equal to that of the Tay-Sachs disease, beginning in the second year and ending with death in the third. Ophthalmoscopically, also, there is at least one case of Tay-Sachs (Mülberger, *Munch. Med. Woch.*, 1903, p. 45) with macular changes of the Batten type (pale red spot at the macula surrounded by ring of granular pigment); while another child in the same family, also with Tay-Sachs, showed irregular lines of pigment in the inner lower periphery, but no coarse changes at the macula. Whether in the first of these cases the fundus had ever shown the typical Tay-Sachs condition is not known, but Rogalski suggests that in the Mülberger case, as well as in the one reported by himself, the white or grey Tay-Sachs ring may have been present in the early stages and have been replaced by the pigmented ring.

With regard to the prevalence of the Tay-Sachs type among the Jews, Vogt believes that this is simply an example of the well-established fact that nervous degeneration tends to be more frequent and severe among the Jews than among other races.



The latest communication of Higier (27), in which he strongly contends for a sharp difference between the two groups, can not be considered illuminating, since he bases much of his reasoning on the inclusion in the juvenile group of the cases of Pelizaeus and Merzbacher, an inclusion which it seems to me the clinical and microscopical features plainly fail to justify.

At the other end of the scale, the juvenile type runs off into the milder cases of Vogt and Higier, with the disease beginning at from 10 to 15 and 12 to 7 years of age respectively; with very slow progression, and in the Vogt cases with little or no change in the fundus. Perhaps my second family should be placed here, as the limit in the direction of mildness of the juvenile type, though the possibility of a hereditary influence makes its position somewhat doubtful. Oatman is probably right in connecting the cases of R. D. Batten and Stargardt with this end of the group. Their cases generally show a normal course to the age of puberty, then degeneration of the retina beginning at the macula, the intellect remaining intact. Whether, with Ichikawa, we should assume that the group also runs into ordinary retinitis pigmentosa is more questionable; but for this view there is to be said that evidence is accumulating which places the primary lesion of retinitis pigmentosa in the rods and cones; while, on the other hand, it may be that many of the cases of retinitis pigmentosa among idiots are not of the ordinary hereditary type, but are the result of a neuro-epithelial degeneration of the same etiology as that of the defective cerebrum.

The question of how much of the blindness in juvenile family amaurotic idiocy is cerebral is difficult to answer. Vogt assumes that it was purely cerebral in one of his families, but it is not evident that the ophthalmoscopic examination was of so expert a character as to exclude the possibility of slight changes at the macula or in the nerve; and it should be remembered that the retina may ophthalmoscopically seem practically normal, although the rods and cones are all destroyed (the course in the Spielmeyer-Stock cases makes it probable that this normal appearance changes, if the patient lives long enough, to marked degeneration of the retinitis pigmentosa type), so that until a microscopic examination shows the absence of extensive disease of the retina or other extra-cerebral parts of the visual nervous apparatus, it will be unwarrantable to speak positively of a purely cerebral blindness.

Regarding the etiology of this disease, most European writers regard it as an example of defective foundation (Anlage), or of Edinger's exhaustion theory, or both. Stock suggests some form of auto-cytolysis as a cause. It is certainly easier to understand how a cytolyisin, with a specific action on the cells of the brain and retina, might produce family amaurotic idiocy than it is to form a clear conception either of defective foundation or Edinger's exhaustion theory (for which ultimately we have to postulate a defective foundation), but when we attempt to account for the occurrence of such a specific cytolyisin in several members of a family at a certain time of life, we become involved in theoretical difficulties of a character no less complex.

Syphilis apparently plays no essential part in the etiology, altho it may incidentally have influenced some of the cases (Spielmeyer-Stock). None of the children carried the usual marks of hereditary syphilis, and the Wassermann test gave negative results in the cases of Oatman, Kuffler and Wandless.

The outbreak of the disease at the time of 2nd dentition is probably only a coincidence. More probable is a connection with the first schooling, which must reveal defects previously overlooked; and, perhaps, if there is anything in Edinger's exhaustion-theory, acts as a real cause through increased demands on the cells of the brain and retina.\*

With regard to the nomenclature, confusion is already beginning to prevail. Vogt speaks of the Tay-Sachs disease as the Sachs-Schaffer form of amaurotic idiocy, and of the juvenile form as the Spielmeyer-Vogt form. If priority in the report of cases is to be considered, the juvenile form should be spoken of as the Higier-Batten form, but as Vogt was first to outline the juvenile group, and it is seldom practical to try to combine more than two personal names with that of any disease, the fairest and most practical plan for the present is probably to speak of the Tay-Sachs or the infantile form; and the juvenile form of family amaurotic idiocy.

\*As bearing on the tendency of retinal cerebral degeneration to begin about the period of the 2nd dentition, the cases of Massalunga and Unverricht may be mentioned. The former (cited by Freud, *Beiträge z. Kinderheilk*, 1893, Heft 3, p. 142) found three children in one family with normal course to 7th year, then progressive athetosis of muscles of face, tongue, and all extremities; but with fair intellect; muscles, sense-organs, and memory normal. Unverricht (*Die Myoclonie*, Leipzig, 1891) found five sisters in one family who had severe muscular spasms beginning in the 6th-7th year.

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2. Mayou, *Trans. Oph. Soc. U. K.*, 1904, p. 142.

3. Vogt, *Monatschrift f. Psych. and Neur.* XVIII, 163 and 320.

4. Vogt, *ibid.*, 1907, Nov., p. 403.
5. Vogt, *Arch. f. Kinderheilk.*, LI, p. 1.
6. Higier, *Deutsche Zeitschr. f. Nervenheilk.*, IX, p. 1
7. Higier, *ibid.* XXXI, p. 231.
8. Spielmeier, *Neurologisches Centralblatt*, 1906, p. 2.
9. Stock, *Klinische Monatsbl. f. Augenheilk.*, 1908, p. 225.
10. Ichikawa, *Klinische Monatsbl. f. Augenheilk.*, Jan., 1909
11. Wandless, *N. Y. Med. Journ.*, May 8, 1909.
12. Brooks, cited by Wandless; and *Journ. Nerv. and Mental Diseases*, 1910, p. 251.
13. Rogalski, *Archiv. f. Psych.* XLVII, 1910, p. 1195.
14. Oatman, *Am. Journ. Med. Sciences*, Aug. 1911
15. R. D. Batten, *Trans. Oph. Soc. U. K.*, 1897, p. 48.
16. Stargardt, *Archiv. f. Ophthalmologie*, LXXI, p. 534.
17. Dercum, *Journ. of Nerve and Mental Diseases*, 1897, p. 396
18. Gordon, *N. Y. Med. Journ.* Febr. 16, 1907.
19. Hirschberg, *Cb. f. Augenheilk.*, Jan., 1904, p. 12
20. Nettleship, *Trans. Oph. Soc. U. K.* XXVIII, p. 76
21. Pelizaeus, *Arch. f. Psych.* 1885, p. 698.
22. Freud, *Neurolog. Centralbl.*, 1893, p. 512-542.
23. Merzbacher, *Zeitschr. f. d. Gesammt, Neurolog. u. Psych.* III, 1910, p. 1.
24. Behr, *Monatschr. f. Psych.* XXVIII, p. 327.
25. Straussler, *Zeitschr. f. d. Gesammt. Neurolog. u. Psych.* II 1910, p. 30.
26. Schuster, *Archiv. f. Augenheilk.*, 1907, I, p. 14.
27. Higier, *Deutsche Zeitschr. f. Nervenheilk.* XXXVIII, p. 388
28. Kuffler, *Beitrage z. Augenheilk.*, 1910, Heft. 75.
29. Firukowa, *Abst. in Zeitschr. f. Augenheilk.* May, 1911, p. 498
30. Behr, *Klinische Monatsbl. f. Augenheilk.* Aug., 1910

## A MODIFICATION OF THE PRINCE ADVANCEMENT FORCEPS.

By FRANK ALFORD, M. D., CHICAGO (Illustrated)

The Prince advancement forceps is so delicate that it frequently slips off from the muscle, etc., in the middle of an operation, especially during my operation for enucleation when I wish to hold the muscle, conjunctiva, etc., before suturing. I have therefore remodeled the Prince forceps and made them small and light, but firm and strong. As the forceps are fre-



Actual Size

quently allowed to hang during an advancement they must be light, and as they must hold securely, they must be strong. The end of one blade has fine teeth like a comb, placed at its edge, the other end of the blade has an elongated opening for the reception of the teeth. Once the soft tissues are engaged between these two jaws, and the forceps closed by the snap, they will not open until released by the operator.

## REPORTS OF SOCIETIES

### BRITISH MEDICAL ASSOCIATION.

#### SECTION OF OPHTHALMOLOGY.

LIVERPOOL MEETING, WEDNESDAY, JULY 24, 1912

EDGAR A. BROWNE, M. CH., F. R. C. S. E., PRESIDENT, IN THE CHAIR

After the president had addressed a few words of welcome to the members present, Mr. George Coats opened a discussion on Chronic Irido-Cyclitis. He said there was a marked tendency to seek the cause of irido-cyclitis in poisoning from septic teeth or the intestinal canal. The position was difficult to prove or disprove, and both pathological states were very common. That being so, why was irido-cyclitis so, relatively, rare? Doubtless the particular resistance of the individual explained many exceptions. In recent years the presence of indican in the urine had been taken to prove the presence of intestinal putrefaction. Keratitis punctata was very commonly present, and was also associated with heterochromia and cataract, the affected iris being of the lighter color. Some thought it due to bleaching as the result of inflammation, or that it was an original condition of the patient, and indicated either a pure "lusus naturae," or a congenitally abnormal eye with weaker resistance. His own view was that the loss of pigment was the effect of the irido-cyclitis, even though the history might indicate that it was long antecedent to the origin of the disease. The origin of the disease was so slow and insidious that its early recognition was no matter of surprise. That the bleaching was the result of inflammation was further evidenced by its appearance in interstitial keratitis and chronic glaucoma. Next, he wished to speak of sympathetic ophthalmitis. Modern research established that the disease was due to a living organism, either bacterium or protozoon, and that this organism reached the other eye not by the nerve or orbital sinus, but by the general circulation. This implied a specific affinity of the poison towards certain tissues. Recently Elschmig attributed the disease to anaphylaxis, a reaction which had proved of grave import by the injection of repeated doses of foreign albumens into guinea pigs. The suggestion was that with the breaking up and absorption of uveal pigment in the injured eye, a hypersensitiveness of the body generally, and especially of the other eye, was produced. Elschmig supposed that the condition could not become effective except in the presence of some constitu-

tional anomaly, such as nephritis, diabetes, auto-intoxication, etc., or a minute lesion of the hypersensitive eye. Part of this could not be correct, as it occurred in healthy and robust people. In very mild cases he questioned whether there was pathological evidence of their being of the same nature. His own experience led him to believe that the most characteristic feature of all was the widespread infiltrations, usually of the whole uveal tract, and this was in marked contrast to the cases of severe iritis seen in other conditions.

Mr. A. W. Ormond (London) said he wished to consider the question of rheumatism and gout as aetiological factors in iritis. We were as yet ignorant of the cause of either of these conditions, although there was evidence that a streptococcus was frequently present in the former disease. He thought that the connection between acute rheumatism and iritis was practically *nil*. At Guy's Hospital during ten years there had been 1,163 cases of acute rheumatism with no iritis. In chronic or sub-acute rheumatism many other complicated features entered, probably of secondary infection with which iritis might be associated. Occasionally one of these cases simulated acute rheumatism. Gout as a causative factor had even less to recommend it. Toxines could produce joint trouble, but he considered that iritis and irido-cyclitis were due invariably to the presence of micro-organisms in the uveal tissues, and that these tissues were very susceptible to invasions by the spirochaeta pallida, tubercle bacillus, gonococcus, etc. These tended to produce purulent inflammations of lesser degree when organisms were deposited metastatically in the uvea from the blood stream.

Professor Snellen (Utrecht) said that there was a great difficulty in determining whether in any case of irido-cyclitis the iritis or the cyclitis was primary. He discussed Fuchs' view that keratitis punctata indicated cyclitis. He thought that its presence resulted from chemotaxis drawing the cells into the anterior chamber and their deposition was due to gravity. He thought also that there was some toxine in the conjunctiva, which drew the cells into the anterior chamber.

Mr. Claud Worth (London) agreed that there was no sufficient evidence of the existence of true rheumatic or gouty iritis. In the cases with keratitis punctata the most important cause was chronic gastro-intestinal disturbance. He drew attention to some cases which might be mistaken for chronic glaucoma.



The examination by the loupe was the only way in which they could be diagnosed.

Mr. J. Gray Clegg (Manchester) had seen a case of sub-acute irido-cyclitis due to oral sepsis, which had cleared up, but a portion of the iris was becoming bleached. This was an answer to many enquiries as to the real cause of the loss of pigment; it was a symptom and the result of cyclitis. He also called attention to some cases seen in young women in whom unusually early symptoms of cataract had been found.

Mr. S. H. Browning (London) said that the best proof of the origin of many cases of irido-cyclitis lay in the good effect of vaccine treatment. In cases he had seen, definite bacterial infections had been found in the teeth, gut and bladder, and the vaccine treatment had been fruitful of success. On the other hand, it was extremely rare to find organisms in the aqueous. He had obtained no useful information as the result of examination of the urine for indican. The bacillus *Coli* had been found in the urine several times, and in every case cure had resulted from vaccine treatment.

Mr. W. H. Brailey (Brighton) said he did not agree with Mr. Ormond that toxins could not cause irido-cyclitis. He thought that this was a very common factor in the conditions, although it was difficult to prove it.

Mr. T. Harrison Butler (Coventry) drew attention to certain anomalies which were difficult of explanation. In Palestine, oral sepsis of the worst kind was almost universal, but irido-cyclitis was extremely rare. Rheumatic iritis he regarded as a myth. Many of the supposed cases were due to septic and tubercular infection. That a toxine could produce irido-cyclitis he had no doubt; how else could the unfortunate cases following the instillation of tuberculin in the Calmette reaction be explained? Or how did a corneal ulcer produce a hypopyon iritis? He did not think that malaria could produce it, nor could chronic suppuration do it alone.

Dr. George Mackay (Edinburgh) said the absence of organisms in the anterior chamber was very good evidence that these cases must be due to toxins. He cited cases due to the bacillus *coli* which had been successfully treated.

Mr. Bishop Harman (London) said much had been made of the apparently successful production of iritis in animals by the injection of streptococci of rheumatic origin. He had seen some of these cases, and his inclination was to consider the iritis

was more of a pyæmic condition than akin to any iritis common to man. The association of septic conditions of the mouth and gut was very common with irido-cyclitis, but these septic conditions were so exceedingly common that the association might seem to be fortuitous, especially as too frequently the direct treatment of the sepsis did not relieve the condition. But in the allied condition of bacilluria the results of treatment, either with urinary antiseptics or with vaccines, were so striking, that one could not hesitate to accept the theory that auto-intoxication could account for irido-cyclitis. Too much elaboration had, he thought, been shown by Professors Fuchs and Snellen in their explanations of the peculiar distribution of the precipitates on the back of the cornea. He thought simple physical phenomena gave the true explanation; in inflammation of the ciliary body the aqueous was turbid. On secretion, with the normal flow into the anterior chamber, the silt found its natural level, and its aggregation into clumps was again partly a physical phenomenon that could be observed in inert precipitates. He thought the supposition that these were toxins in the superficial tissues, was quite unnecessary. The theory of anaphylaxis had something to commend it to our attention as a possible explanation of the symptoms of sympathetic ophthalmitis. It might conceivably be the primary condition that rendered the sympathizing eye so susceptible to the attack of the real agent. It was particularly suggestive in those cases of violent sympathetic disease which followed rupture of one eye without apparent injury to the conjunctiva.

Dr. J. Igersheimer (Halle) agreed that indigestion was possibly a cause of irido-cyclitis, even though it could not be definitely proved. The production of cataract by naphthol poisoning in the animal was interesting in this connection; it only followed ingestion of the poison into the stomach, and not injection into the veins.

Dr. Maitland Ramsey (Glasgow) said that defective elimination was frequently associated with persistent irido-cyclitis in which careful examination excluded all evidence of bacterial infection. Treatment directed to the increase of the quantity had been successful in that there was a subsidence of the ocular inflammation.

Mr. Coats replied.

Dr. Karl Grossmann (Liverpool) read a paper on the Board of Trade Standard of Eyesight Tests for Sailors.

As regards form vision he advocated the adoption of a stringent test, but when the failure to pass was due to an error of refraction remediable by glasses, he thought that glasses should be allowed. They were serviceable to sailors, engine-drivers, chauffeurs, etc., and the prohibition of their use was an old and foolish notion. Commenting on the colour tests, he considered that the lantern test was the only efficient one, but recommended that the colours should not be named, but only matched. He thought it necessary that A. B.'s should be periodically re-tested, and their vision noted in their papers, so that captains would know who to employ as look-outs.

Mr. J. W. Barrett (Melbourne) said that in Australia the Board of Trade tests were considered so utterly inadequate that the principal steamship companies entirely rejected them as useless. For the Pilot service, the candidates were completely examined by ophthalmic surgeons, and unless they had good eyesight they were rejected. They would not pass a candidate, no matter how good his vision was, if he had more than about 2 D of hypermetropia, as his distant vision would fail later on. Holmgren's test was next door to useless, and he mentioned the case of the loss of the P. and O. steamship "Australia" at Port Philip, which was due to the pilot, who had only 6/36 vision, and also had previously lost a ship because he had failed to see an occulting gas buoy, as a "flock of birds" was said to have come in the way. He thought that unless candidates were examined by careful examiners instead of by clerks and marine officers, who knew nothing of the subject, no satisfactory results could be obtained.

Mr. Devereux Marshall (London), commenting on the recent Report of the Departmental Committee of the Board of Trade, said that the Report was most disappointing. He criticised the action of the Committee in introducing a lantern, instead of reporting on those existing and well known. Further, their lantern was, on their own showing, inefficient, and had been simplified so that it should not confuse the lay examiner; consequently it no longer presented difficulties to most colour-blind candidates. He considered that if this lantern were used it was bound to prove that "lanterns" were useless. Lastly, the Committee had supported the Holmgren test against the considered rejection of almost every other authority.

Mr. T. H. Bickerton (Liverpool) said he was in entire agreement with Mr. Marshall in his criticisms of the Board of

Trade Report. That document showed an entire ignorance of the conditions of the seamen.

Mr. Bishop Harman (London) severely criticised Dr. Grossmann's recommendation as to the wearing of spectacles by sailors. He said it was evident that either Dr. Grossmann had not worn glasses at sea, or else that he was unfamiliar with the sea. His experience of spectacles at sea, over many years and under conditions ranging from fishing smacks to the bridges of large steamers, was that spectacles were worse than useless. They speedily became covered with fine drops of spendrift, so that vision through the lens was much worse than without any glass at all. Spectacles were a boon in their proper place and in reasonable conditions, but outside the cabin of a steamship they were an impossibility.

Mr. Harrison Butler (Coventry) confirmed the experience of Mr. Harman, and also said that a very little reduction of form vision rendered one incapable of picking up marks at sea.

Mr. C. H. Sears (Liverpool) and Dr. George Mackay (Edinburgh) discussed the actual standard of form vision recommended.

Dr. Grossmann replied.

## BRITISH MEDICAL ASSOCIATION.

### SECTION OF OPHTHALMOLOGY.

THURSDAY, JULY 25, 1912.

EDGAR A. BROWNE, F. R. C. S. E., PRESIDENT, IN THE CHAIR.

In opening the discussion on the use of Tuberculin in Diseases of the Eye, Dr. George Mackay, Edinburgh, gave a brief resume of the specific modes in which tuberculin might be employed in diagnosis and treatment. He explained how, prior to Calmette's ophthalmic test and Von Pirquet's cutaneous reaction he had found much help from the study of phagocytic indices as first suggested by Wright, but modified by Dr. Ian Stewart and Peel Ritchie of Edinburgh, and that he still availed himself of this method of diagnosing in complex cases. With the aid of the epidiascope, a large number of beautifully drawn colored illustrations were exhibited, depicting eyes affected with phlyctenular conjunctivitis, episcleritis, keratitis, kerato-iritis, iritis, irido-cyclitis, interstitial keratitis, and pseudoglioma. Attention was drawn to the importance of recognizing the association of staphylococcic infection, especially with more super-

ficial tubercular lesions; of the value of tuberculin in the diagnosis of specific and tubercular interstitial keratitis, or rheumatic and tubercular episcleritis, in the recognition of tubercular paralyses or oculo-motor nerves, and in the treatment of these conditions when of tubercular origin and when due to mixed infections. Some illustrations of its use in showing tubercle as a causative factor in cases of doubtful origin were also submitted.

Dr. L. C. Peel Ritchie (Edinburgh) dealt with the methods of blood examination employed in the investigation of cases like those shown by Dr. Mackay. They had to remember that while the blood might give evidence of the presence of some particular organism affecting the system, that in itself did not furnish the cause of the eye infection. Further, there was a possibility of more than one variety of infecting agent being present. At first they had to make a large number of blood examinations for a variety of organisms, but with experience the range of the examinations became limited, and latterly some inoculation tests and treatment had been carried out in a number of patients without any examination of the blood. He showed that this differentiation of the various types of tubercle was of great importance. In some, the bovine tubercle was specially common, and treatment with human tubercle was ineffective. The general principle was to keep the patient constantly under the influence of small doses, of fairly uniform amount, of tuberculin, to avoid hypersensibility by giving the earlier doses at short intervals, while later, as the condition tended to come under control, to increase the intervals, and also the dose.

Dr. Hill Griffith (Manchester) gave an illustration of the successful use of diagnostic methods and treatment with tuberculin in two recent cases. One was an adult man suffering from tubercular conjunctivitis, and the other a boy with multiple tubercular lesions. Injections of tuberculin T R at intervals of fourteen days had been most successful.

Mr. T. Harrison Butler (Coventry) said that Calmette's reaction was dangerous and inaccurate. He had seen violent reaction, with interstitial keratitis and corneal ulcers developing in perfectly normal eyes after its use. Von Pirquet's reaction was positive in 90 per cent of all adults, and so became valueless. In children it was more useful. Injection of Koch's old tuberculin was the only method which gave good results in ophthal-



mic work. A local reaction was almost certain proof of ocular tuberculosis. He had used .001 c.m., followed after a few days' interval by .002 and .004. He had had a case which failed to react to human, but reacted to bovine tuberculin. For treatment, T. R. 1/2000 m. g. was the best. He used this for months. It was questionable if good results could be obtained by increasing this dose. He had seen excellent results in tubercle of the uvea. Scleritis and sclerosing keratitis was frequently tubercular, and often cured by tuberculin. Dr. Hill Griffith's case might be one of Parinaud's conjunctivitis which had, in many cases, been proved to be tubercular.

Dr. W. B. Marple (New York) said that he was much interested in the cases of interstitial keratitis of tubercular origin. In his own experience, the majority of cases of interstitial keratitis gave the Wassermann reaction, and the balance did not react positively to the tuberculin test. He had had several obsolescent cases of tubercular choroiditis with a focus of recrudescence with positive tuberculin reaction. Some cases of recent tubercular choroiditis with "mutton-fat" exudation on Descemet's membrane quickly disappeared, but the opacities in the media, and the choroiditis only very slowly got well. In tubercular iritis, where tuberculin was given as a diagnostic aid three times at intervals of four days, no positive reaction, except a very slight rise of temperature, was noted, but the nodules gradually disappeared. He agreed that small and gradually increasing doses were necessary, and that the treatment should be continued for several months, or a year.

Dr. Louis Dor (Lyons) said that no doubt some remembered the enthusiasm of the whole assembly when, in 1890, at the International Congress at Berlin, Koch announced that he had found a remedy for tuberculosis which he called tuberculin. From then till 1893 nearly all physicians tried it, but unhappily it was proved that the remedy was very dangerous, and that in some cases the disease was aggravated. Lately he had treated a great number of patients with interstitial keratitis, eighty in four years. He considered that a great number of cases of interstitial keratitis where the Wassermann reaction was negative—cases of phlyctenular conjunctivitis, chronic scleritis, quiet iritis, hyalitis, detachment of the retina without myopia, irido-cyclitis, optic neuritis, etc.—were due to tubercle, and in these the best thing was to try the action of tuberculin as a diagnostic agent. In the majority of cases, local and general

reaction resulted, and many of them were very atypical cases. He used very small doses (a one-hundredth thousandth part of a milligram), and every third day he injected larger doses so long as no reaction resulted. As soon as local or general reaction was apparent he injected the same dose until it produced no reaction, then he again increased the dose. He did not neglect local and general treatment as well. He had never seen bad results from this method, which had a very beneficial effect on the lesion. The action was slow, and quite unlike the rapid action of salvarsan and iodide. It was absolutely necessary to treat a great number of patients before coming to a definite conclusion. The treatment should never be shorter than two months. Even after three months, when the patient seemed to have been cured, he had seen relapse. Then a second course of treatment was necessary, as long as the first. He was thoroughly convinced of the beneficial results of tuberculin. For the majority of cases he preferred the German bacillary emulsion (B. E.), which was a culture of bacilli crushed and killed.

Mr. Bishop Harman (London) wished to raise the question as to whether they were justified, in the present state of knowledge, in using tuberculin by rule-of-thumb methods, that is, without a preliminary exhaustive examination of the blood, and the repetition of these tests during each stage of the treatment. He thought they were justified in doing so. The cutaneous tests for tubercle were at best dubious, and the personal equation in making the blood tests was so great that in any event they were left mainly to their own clinical acumen. He had found the use of tuberculin in selected cases, after the manner detailed by Dr. Peel Ritchie, safe and satisfactory. And he relied upon three guiding signs: the appearance of the local lesion, the temperature of the patient taken regularly, and lastly, the feeling of fitness on the part of the patient. If the patient felt out of sorts, no injection was given that day. With regard to the assumption on the part of some that phlyctenular conjunctivitis was always of tubercular or para-tubercular origin, he would raise the most emphatic protest against such a sweeping assertion. All the evidence tended to show that the greater number of the cases—which formed a large part of those seen at children's hospitals—were comparatively innocuous lesions due to local causes. He had examined the case-papers at the Belgrave Hospital for ten years, with these

results. Of all the cases, one-half were cured in one week; a further quarter in a fortnight, and only 5 per cent dragged on for a month, and these were cases of phlyctenular keratitis occurring in children who were justly called "strumous" at sight. Next, the cure was obtained by the simplest means, such as yellow ointment. In some cases he had experimented with plain castor oil, with equally satisfactory results. Further, the cases had an "age peak" at six years old, a fact which had no relation to tubercle, but a very definite one to the decay of the first dentition, and the eruption of the second teeth. Lastly, the lesions had a seat of election, one that had a specific relation to the distribution of the fifth nerve to the supply to the teeth. These things led him to conclude that the common phlyctenular conjunctivitis of children was not tubercular in any real sense; it was a herpetiform eruption due to irritation or collateral branches of the fifth nerve. In a residuum of cases there were genuine tubercular lesions, particularly those lesions which occurred in later years of the pustular sort, and the combined episcleral and corneal lesions which were often, but probably erroneously called "phlyctenular." He felt that to assign a simple lesion to a grave condition and to claim a cure for it by vaccine treatment, when it was more easily cured by the simplest means, was to discredit vaccine treatment.

Dr. Mackay briefly replied.

#### **The Treatment of Word-Blindness, Acquired and Congenital.**

A paper read by Dr. James Hinshelwood (Glasgow).

Dr. Hinshelwood said the old idea was that nothing could be done for the education of persons suffering from these serious defects. Much, however, could be done if the treatment were conducted on proper lines, and he indicated what line, in his experience, it was best to adopt. Pure cases of acquired word-blindness almost always came to the ophthalmic surgeon in the first instance, as it was supposed the defect lay in the eyes. The lesion, however, was in the brain, either in the angular gyrus, or in the interruption of the communicating fibres between it and the cortex. In right-handed people the lesion was on the left side. He related the case of a man *æt.* 58, a teacher of languages, who awoke one morning with the power of reading quite lost. He had right lateral homonymous hemianopsia, but no other symptoms were discoverable. He started to re-educate himself, learning words and letters like a child. After six months he was able to recognize the letters of the alphabet,

but never learned to read words by sight. He could only read by spelling out words letter by letter, and thus appealing to his auditory memory. After a year he gave it up as hopeless. Still, he had re-acquired the visual memory of the letters and of a few short words. Another patient was a woman *æt.* 34, who had been completely word and letter blind for fourteen months. She had right homonymous hemianopsia. Her brother, who was a schoolmaster, took great interest in her re-education. It was found that the effort of education was very great, and could not be continued for more than ten minutes at a time. Ultimately, she learned to read simple Bible texts by spelling out the words. Her progress from that point of attainment has been steady but slow. After an interval of ten years she could read a newspaper fairly fluently; only occasionally was she compelled to spell words. The third case was that of a girl *æt.* 14 years, who had right sided paralysis and loss of speech 18 months before. Previously she had been a good reader. When first seen she was completely letter-blind, and had right homonymous hemianopsia. The auditory memory was unaffected. Re-education was started. After learning the alphabet, she was allowed to spell out the words letter by letter. In four months she had made considerable progress, and could recognize any letter and many small words. Longer words she had to spell, so as to get the aid of her ear. Two years later she could read as well as ever, but the hemianopsia persisted. Age evidently was a very important factor in the ability with which these patients were able to regain their lost powers. The lesion in these cases was cerebral hemorrhage. In such cases the process of re-education should be delayed until all signs of acute brain symptoms had disappeared. Re-education in these cases could only be accomplished by bringing into play the corresponding centre on the other side of the brain. He argued that both in these and in congenital cases neither the old system nor that known as the "look and say" method were suitable for all cases. A great deal would depend upon the degree of defect in the visual memory and upon the condition of the auditory memory. When the visual memory was very defective and the auditory good, then the old system would give the best results; but when the auditory was not good, the best results might be obtained by the "look and say" system. Lastly, personal education was in all cases necessary, and a

number of short reading lessons during the day was better than one long one, for the brain rapidly became exhausted.

Dr. F. W. Edridge Green (London) quite agreed with the methods suggested for training the memory. He considered it was of the greatest importance to put as little strain as possible on a weak faculty. It should be remembered that the retina was represented in the cerebrum, and we might almost speak of a "cerebral retina."

FRIDAY, JULY 26TH, 1912.

MR. EDGAR A. BROWNE IN THE CHAIR.

A discussion on the Use of Salvarsan in Diseases of the Eye was opened by Mr. Sydney Stephenson, London.

Mr. Stephenson said that most were agreed that the best mode of administering the drug was by intravenous injection. As regards dosage their aim was not so much to relieve the local symptoms but to cure the underlying disorder. At least two or three maximum doses should be administered at intervals of a few days. Some of the poor results obtained by the drug were really due to inadequate dosage. Some had held that small doses resulted in the production of resistant strains of spirochaetes. The use of the drug must go hand in hand with the frequent determination of the Wassermann reaction, and it was important that the test should be quantitative as well as qualitative. It had been shown that the administration of salvarsan did not prevent the appearance of new syphilitic symptoms during the period of administrations just as was the case with mercury; this occurrence was attributable to the presence of nest of organisms which escaped the action of the initial doses. Experience showed that tertiary symptoms appeared earlier after the use of the drug than under ordinary treatment, and to some extent it could be said the type of syphilis was altered by the new treatment. These appearances were most frequent after the use of small doses of salvarsan and pointed to inefficient treatment. There was strong evidence to show that it was necessary to use mercury conjointly and after the injection of salvarsan with the object of preventing these late symptoms.

General symptoms seen after the injection of the drug, such as pyrexia, insomnia, sweating, nausea, headache, restlessness, and so forth were probably more the effect of faulty adminis-



tration than the direct effect of the salvarsan. In this connection it was of the utmost importance that the solvent should be freshly distilled water.

In eye disease particularly it was of the first importance to prevent local reaction else the delicate tissue of the eye might be further damaged, and in this connection it was reported that such reactions were commoner when insufficient doses were employed. Recently it had been shown that salvarsan was contra-indicated in severe vascular lesions of the eye with tendency to hæmorrhage. The influence of the drug upon the optic nerve was of the first importance to ophthalmic surgeons. Ehrlich had shown in his long list of collected cases only one case of nerve effect had been found, other later workers had averred there was danger to the nerve, but the balance of opinion was distinctly in favour of its innocuous character as regards the healthy optic nerve, and also that it could be safely and with real advantage be administered in syphilitic affection of the nerve. Ehrlich's observation was now two years old.

Considering ocular disease there was unanimity of opinion as to the curative effect of the new product; at most it appeared to give one more anti-syphilitic remedy the exact place of which remained as yet uncertain. In interstitial keratitis of inherited syphilis, for which mercury was well nigh useless, salvarsan had on the whole given no better results; a few surgeons reported good results, but the majority thought the malady little influenced by it. The relief of photophobia was fairly generally acknowledge. Those who claimed good result from its use were accustomed to give several injections.

An interstitial keratitis of acquired syphilis was readily relieved by it, but the same speedy relief was to be obtained by mercury. As a rule iridocyclitis of secondary syphilis responded well to the drug and much more quickly than it did to mercury. Improvement was usually found the day after the injection. In conclusion it appeared that when properly given it presented no particular danger to the body nor to the eye; it was most likely to be useful in primary and secondary manifestations, particularly in conditions affecting the uveal tract, but it was well to combine its use with mercury.

Dr. J. Igersheimer (Halle) gave an account of a series of important experiments he had performed upon small mammals to determine the toxicity of the drug. In the optic nerve fibres of cats, there was definite reaction of degeneration by Marchi's

method after its use, but the degeneration only followed chronic poisoning. He agreed that there was no evidence of such untoward effects in man. In recent syphilitic affections of the optic nerve salvarsan had a very favorable effect. The drug was least useful in interstitial keratitis, but in his hands there had been distinct improvement in quite a number of cases when two or three injections were given; he did not mean cures, but a certain favorable influence on the course of the disease. Further in these inherited cases he found that salvarsan had more influence in varying the Wassermann reaction than had mercury. Beneficial results had been obtained in paralyses of ocular muscles of syphilitic origin, particularly in gross paralyses due to gumma of the orbit which pressed on the optic nerve. He had had some experience of Neosalvarsan, a late product which had the distinct advantage of being easily soluble. Its toxic effect upon cats was greater than that found for salvarsan. He had injected it experimentally into the cornea of rabbits, the clouding produced speedily cleared up. Subconjunctival injection, however, tended to produce necrosis. Used in syphilitic patients it appeared to cause some transient mental symptoms, but it exerted a distinctly more favorable influence upon interstitial keratitis than did salvarsan.

Dr. W. B. Marple (New York) said he preferred to reserve his considered opinion of the value of the new drug until after the dust of premature observations was removed from the medical atmosphere. He had used salvarsan in interstitial keratitis and gummatous or papular iritis. In the keratitis, although the Wassermann reaction was negative, no effect was observed in the ocular condition except possibly a slight diminution of photophobia. In iritis the effect of the injection was extraordinary; it was more rapid and complete than could be obtained by other methods.

Dr. A. Maitland Ramsey (Glasgow) said he had used salvarsan in 22 cases of eye disease due to syphilis. Two were chronic cases, five congenital and the remainder acquired. Primary chancre of the eyelid responded to the treatment with remarkable rapidity, so also did syphilitic ulceration of the conjunctiva. Scleritis showed no improvement, one case of keratoiritis improved considerably. Five cases of iritis responded, one with magical rapidity. Five cases of choroiditis showed improvement, particularly when the lesion was recent.

As regards dangerous effects of the drug upon the optic

nerve he was inclined to think that cases reported were due to the continued activity of insufficiently treated syphilis rather than to the noxious influence of the drug. In conclusion he recommended the conjoint use of mercury and those local measures which one most approved.

Mr. S. H. Browning (London) dealt with the use of salvarsan in sympathetic ophthalmitis. Continued observations of the blood in cases of this disease had shown that there was a distinct increase in the number of large mono-nuclear leucocytes, even to 30 or 40 per cent of the white cells. This was typical of the blood of patients suffering from protozoon infections. The deduction was that this fell disease might be due to such an infection and therefore be amenable to treatment by salvarsan. He detailed the case of a boy treated upon this hypothesis by three injections of salvarsan; the results were excellent and distinctly warranted the extended trial of the drug for this intractable disease.

Mr. Bishop Harman (London) said he was in the fortunate position of being able to overlook the work of his colleagues in a general hospital where salvarsan had been extensively used. It was their custom to prepare the patient as for a major operation, to give an average dose in two or three injections at intervals of a week.

So far he had not seen any deleterious effects upon the optic nerve, and in some cases he had watched it was used for cerebral syphilis with optic neuritis and they had benefited considerably, but in one there had been a sharp relapse. Among eye disease he had not been able to find any advantage in its use in interstitial keratitis even when used in three injections in most recent and acutely vascular case. Again it had failed in rapidly advancing choroido-retinitis, but so also had mercury. He acknowledged its successful influence in acute iritis, but he did not advise it in such single ocular conditions which were readily amenable to other and completely harmless measures. The case was of course different where other and general symptoms of the disease existed. In acute cyclitis with rapidly increasing vitreous opacities and in syphilitic optic neuritis its use was warranted, for rapidity of treatment was essential. In cases of lesser severity it should only be given when the risks had been fully explained to the patient, for there were risks. He had seen serious ocular paralyses follow immediately on the injection, and there were known cases of inexplicable

and sudden fatal results even when the administration was in perfectly competent hands.

Dr. Nimmo Walker (Liverpool) said he had also observed the use of the drug by his surgical colleagues and watched four cases of unsatisfactory results following its use. In one case interstitial keratitis, and in another gummatous iritis, occurred after the injections, showing that they had been unsuccessful. Two others, a papillitis and an acute retrobulbar neuritis with myelomalacia, had followed the injections, but it was possible these effects were due to the syphilis rather than the drug.

Dr. Inglis Pollock (Glasgow) said he would like to add a word of caution. It was within their memory that the disastrous effects of other arsenical compounds upon the optic nerves had not been observed until these drugs had been in use for some time. It was two years before the first of these cases had been noted, and in a short time two hundred had been put on record.

Dr. A. L. Whitehead (Leeds) sent a summary of the cases related by him. Interstitial keratitis 37, syphilitic iritis 22, retinitis one. The Wassermann reaction was positive in all. In acute iritis the results were striking and gratifying, so also in retinitis. In interstitial keratitis only two showed any detectable improvement; in three monocular cases the other eye became affected after its use.

Mr. Jameson Evans (Birmingham) said he had used salvarsan in a few cases with good results, including one of interstitial keratitis with marked photophobia and trigeminal neuralgia which had resisted other treatment. He had found general disturbance was not absent after the injection of neo-salvarsan even when administered in the most exact manner.

Dr. A. Pockley (Sydney, N. S. W.) detailed a case showing the extraordinary rapidity with which gross and complicated iritis due to an accidentally acquired syphilis in a colleague had been reduced by the injection of this drug, yet death followed later from other syphilitic symptoms. He had found no benefit from its use in interstitial keratitis. No ill effects had followed its use in his patients, but in a neighboring hospital a patient had died suddenly after an injection.

Mr. Sydney Stephenson in reply urged that no evidence had been forthcoming that salvarsan had any deleterious effect upon the optic nerve, and insisted that it was unjustifiable to condemn it as useless in interstitial keratitis after the failure of single injections.

Dr. Inglis Pollock (Glasgow) read a paper on Intra-ocular Haemorrhage. He said that retinal haemorrhage such as occurred in vascular disease was only dangerous to vision when it occurred at the macula, even then there was a possibility of absorption. Post-operative haemorrhages were particularly lamentable; it always occurred in the choroid, and such eyes were a total loss, and little could be done to anticipate such accidents. Certain recurrent hyaloid haemorrhages were common in young people, especially males, though some appeared in females as vicarious menstruation. Constipation and gout were predisposing factors. It was probable that such haemorrhages came from the veins.

Mr. Claud Worth (London) said that he had recently seen a case of hyaloid haemorrhage recurring as vicarious menstruation in a young lady where treatment had been of no avail, the patient had ultimately become blind. In another lady the attacks had been stopped by the regular use of iodide of potassium.

Mr. H. Eales (Birmingham) mentioned a singular case occurring in a patient who had been brought up as a female but who proved at adolescence to be a male. The haemorrhages were most frequent in young males of from 15 to 25 years of age, and it appeared to be due to a peculiar vasomotor condition. In some there had been concurrent tubercular disease.

Dr. J. Gray Clegg (Manchester) had had several such cases. The coagulability of the blood had been investigated where there was no evidence of tubercle: in one there was evidence that it was below normal and calcium lactate had been of service.

Dr. Igersheimer (Halle) said tubercle was a distinct aetiological factor in these cases and the use of tuberculin had been valuable in one such case.

Mr. A. A. Bradburne (Manchester) gave an account of an investigation he had made into the relation of ocular imbalance and auditory affections.

Hunter, Fleuren and Purkinje had noticed ocular effects in disturbance of the semi-circular canals, facts that were established by Goltz. Later it was shown that these disturbances were due to excitation of the semicircular canals. Body balance was so intimately connected with binocular vision and the sensations of the auditory canals that it was not unreasonable to anticipate ocular symptoms in disease of these canals.



He had investigated seven cases of labyrinthine disease, and all but two showed that the vertical meridians of one or both eyes tended to lean outwards at the upper end. In these two exceptions the proof of the ear disease was not complete. In cases of temporosphenoidal abscess there had been found a disturbance of the horizontal levels of the eyes. In a number of post-operative cases of ear disease he found similar defects, the vertical meridians were at fault in six, and the elevation in five. Allowing for the possibility of ocular imbalance being a condition existing before the ear disease in some, yet the frequency of the finding of eye defect seemed to point to a casual connection.

Mr. Claud Worth (London) and Dr. Hill Griffith (Manchester) discussed conditions allied to those noted by the author, and Dr. Chas. George Lee (Liverpool) suggested that the visual influences in the production of sea-sickness had connection with the phenomenon noted by Mr. Bradburn.

Mr. Jameson Evans (Birmingham) gave a demonstration of the "Optophone," an instrument devised by Mr. D'Albe of Birmingham which had the property of rendering light radiations audible to the ear. The instrument was a selenium photometer. The sensitive plate was set in the circuit of an electric battery so that variations in the conditions of the plate by light varied the current and caused it to work a ratchet. The rate and strength of the sound indicated variations in the light which could be appreciated by blind people. At present he said it was a toy, but it had possibilities.

At the Liverpool Eye and Ear Infirmary clinical cases were shown by Dr. Edgar Stevenson, and at the St. Paul's Eye Hospital Mr. Bishop Harman gave a demonstration of his new operation of Subconjunctival Reefing and Advancement for Squint; and Dr. Nimmo Walker of the operation of Kerotomy as practiced there for corneal ulcers.

C. Devereux Marshall, 112 Harley Street, London, W.

## MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA.

### OPHTHALMIC SECTION.

SIXTY-SECOND ANNUAL SESSION, SEPTEMBER 24-26, 1912.

1. Opening address by the Chairman, Dr. Wendell Reber, Philadelphia.

#### **The Teaching of Ophthalmology in America.**

Thorough-going ophthalmic instruction is best obtained in a postgraduate school, with its clinic or clinics; the exception being in the case of those men who may attach themselves for a period of years to a well-organized ophthalmic clinic in their own city. Legislation in behalf of postgraduate teaching does not, in the light of present conditions, seem feasible; ophthalmic instruction seems rational, and can be more easily and readily achieved by co-operation among postgraduate institutions than by any other means now at hand. The six-weeks course should be abolished. A three-months to a six-months or a twelve-months course would probably furnish the best working basis for agreement among our postgraduate institutions. No applicant for postgraduate teaching should be admitted to any of the well-recognized specialty courses who has not completed three years in general practice, or its equivalent in general hospital work. Certified attendance upon a recognized ophthalmic clinic for one or more years, after three years in general practice or its equivalent in general hospital work, should entitle such a clinical assistant to examination for whatever degree in ophthalmology may be agreed upon among the American postgraduate institutions. This plan would provide as many well-trained workers in ophthalmic science as the nation would have need of for some years to come.

#### **Symposium on the Conservation of Vision.**

Dr. F. Park Lewis, Buffalo, New York (by invitation): Inadequate as are our statistics of the blind, we have none whatever concerning the multitudes who go handicapped through life with defects of sight that, while short of blindness, yet limit their opportunities and lessen their working possibilities. The prominent causes of blindness are congenital defects; defects due to an imperfect nutrition and unsanitary living; defects due to infections of a dangerous character; amblyopias through failure to arrest strabismus until it is too late to restore function;

medical and surgical failures through wrong diagnoses or operations made under wrong conditions, by inexpert operators, or at the wrong time; avoidable accidents, and delays when prompt treatment is imperative. Blindness also results from the use of wood alcohol. Even when purified, or deodorized, this is just as dangerous, and even more so. Trachoma has also grown to be a serious menace. A system by which records of all existing cases of blindness could be brought to a central point for classification would be of great value. The American Association for the Conservation of Vision is designed to work in harmony with all other bodies that it can aid or from which it may receive helpful assistance, and to be a clearing house through which all protective and preventive eye work may be carried on. It is hoped that the medical men throughout the country will give their support to this movement.

#### **Trachoma in Its Relation to Blindness.**

Dr. Clarence P. Franklin, Philadelphia: Although trachoma is an alien disease, there is a sufficient amount of it in the United States to present a problem that slight neglect might increase to troublesome proportions. At our ports, persons with this disease are stopped and sent back to the countries from which they come, but some cases escape detection. The American Association for the Conservation of Vision has recognized trachoma as one of the causes of blindness. This Association was organized under the direction and with the moral and material aid of the Russell Sage Foundation. State laws governing trachoma are quite inadequate, and the work must be done by private endeavor. At present, in the list of causes of blindness, trachoma holds a place that should be vacated. Blindness from trachoma in the United States is a reproach.

#### **Some Effects of Artificial Light Upon the Eye, with Means of Determining the Same.**

Dr. William Campbell Posey, Philadelphia: Insufficient light produces the unfortunate psychical effect of insufficient illumination. Recently published experiments in the "Illuminating Engineer" of October, 1907, point to the fact that with indirect illumination, the amount of light for comfort in reading must be sixty-five per cent greater than with direct. Indirect light is an abnormal form of lighting, seldom or never to be found in nature, to which the eye is unaccustomed. With it, we lose the shadows by which we judge distance and relief. The illumination of surrounding objects and that of the work

on the desk are the same; while experience has shown that whereas it is unwise to light the work greatly in excess of surrounding objects, a small amount of superior illumination makes for comfort. It is conceivable that light reflected from the ceiling and colored surfaces might undergo some change interfering with its efficiency. The most satisfactory results were obtained with thirty-six candle-power, forty-unit Tungsten lamps, each equipped with a trans-fusing prismatic reflector. The lights were arranged in three rows of three lamps each, running parallel to the rows of desks; so that the center of light-distribution was slightly to the left of the middle of the room when facing the teacher's desk. With this arrangement, and with the lamps ten feet six inches above the floor, the candle-foot illumination on top of each desk was approximately twenty-five candle-feet at each desk.

#### **On Industrial Injuries to the Eyes.**

Dr. William W. Blair, Pittsburgh: Certain industrial occupations have always been associated with risk of injury to eyesight. Upon trial, it has been found that such risks may be largely reduced by the institution of various devices. Properly contrived employers' liability laws also bear an important relation to accident prevention. It is the duty of all to spread the gospel of the conservation of vision, especially of those coming into contact with men whose daily work exposes them to the constant risk of injury.

#### **On the Sociologic Aspect of Errors of Refraction.**

Dr. William Zentmayer, Philadelphia: As affections of the eyes that may lead to incurable blindness may have their origin in or be activated by errors of refraction, such errors, when producing symptoms, should at once be corrected. It would aid in the efficiency of labor and prove an economic saving for corporations and others with large office forces to require of applicants for employment an examination of the eyes by a competent ophthalmologist; and, where errors of refraction are present, to insist upon their correction. The examination of the eyes of school children should be compulsory by State law. Such examinations should be made in a thorough manner by a competent ophthalmologist. As it seems possible that certain types of epilepsy may have an ocular origin, this question should be made the subject of careful institutional study. In consequence of the adoption of working-

men's compensation laws in many States, it is of the utmost importance for employers to have the eyes of their employes and applicants for positions examined by a competent ophthalmologist, and have errors of refraction corrected. A campaign of public education as to the danger of intrusting the examination and treatment of the eyes to those whose only qualification is their assurance and whose only aim is the successful accomplishment of a business transaction should be undertaken. This should be done through the columns of such papers as hold the public good above commercialism.

### **Ophthalmia Neonatorum and Its Relation to Blindness.**

Dr. Edward B. Heckel, Pittsburgh: The enumerators in the Census of 1900 report a total of 101,123 persons alleged to be blind. This number was subsequently greatly reduced by correspondence; 8,842 of those alleged to be blind reported that the alleged defect did not exist, and 6,544 reported that they were blind in one eye only and had normal vision in the other; 19,884 failed to make any reply, leaving a total of 35,925 to be eliminated. Therefore, there remained for statistical purposes 64,763, of which 35,645 were totally blind, and 29,118 partially blind. Perhaps the 19,884 persons who did not reply should be included in the grand total.

As to ophthalmia neonatorum as a casual factor, the Census of 1900 states: "Exclusive of congenital defects and injuries, accidents and operations, there were 2,556 who lost their sight after birth, but under one year of age; and in 644, or 25.2 per cent of these cases (i. e., of the 2,556), the cause of blindness was probably ophthalmia neonatorum." In other words, the 644 who probably became blind as the result of ophthalmia neonatorum represent less than one per cent of the grand total of 64,763, or less than two per cent of the 35,645 who were totally blind. Therefore, the statement that twenty-five to forty per cent of all cases of blindness are due to this disease is an error.

The value of proper prophylaxis is beautifully shown by the statistics furnished by a committee of the American Medical Association of which Dr. Lewis, our guest, was Chairman. Out of 12,298 births, there were 346 cases of ophthalmia neonatorum, or less than three per cent. It has clearly been shown that the installation of one per cent, or even two per cent, nitrate of silver never results in any harm; and if so, might we



not use it as a routine in all of the new-born? However small the percentage of cases may be, so long as any exist, it is our duty to fight this disease.

### **Dynamite-Cap Injuries to the Eyes.**

Dr. John B. Corser, Scranton. These accidents are very frequent, especially in mining communities; and their results are deplorable. Treatment is hopeless in cases in which pieces of copper have penetrated the globe and remain in the eye. More favorable results could be expected if these dynamite caps could be manufactured of iron, instead of copper. I have had some correspondence with manufacturers of these caps in regard to this matter, but the results of it have not been satisfactory. A better result might be expected, if the influence of this Society and public opinion could be brought to bear on these manufacturers.

*DISCUSSION.* Dr. Samuel D. Risley, Philadelphia. The statistics presented both by Dr. Heckel and Dr. Lewis are encouraging. There can be no more striking example of the value of work along sociologic lines than is shown in the rapidly diminishing percentage of ophthalmia neonatorum and Trachoma. The same may be said of the ophthalmologist in the examination of the school children's eyes and the correction of visual defects, as brought before us by Dr. Zentmayer. We see this in the great diminution in the number of myopic eyes. High myopia is rare when compared with former years; and this means fewer cases of blindness from detachment of the retina and, moreover, increases the happiness and usefulness of a much larger number of individuals whose career would have been handicapped by visual defects.

Dr. Lewis H. Taylor, Wilkesbarre. I wish to draw attention to the number of injuries that those of us who practice in mining or manufacturing communities find, and the fact that so many of these eyes are lost by suppurating ulcers simply through ignorance and carelessness; and I thought to bring out the fact that the correction of this must be brought about largely through the education of these very people who are the victims of these accidents. Yet how hard it is, as Dr. Lewis has stated, to educate people to take care of themselves! They resist interference by anyone else in the attempt to educate them. So often we find a case such as was cited by Dr. Blair, and might be by any one of us. I recall one that has recently gone on to destruction, in spite of my care. It was simply a pure

case of neglect. The man's eye was injured by a piece of coal in the mines, and was treated by such a person as Dr. Blair has referred to, who probably stood the patient up against the wall and scraped the cornea; and, after a week or ten days, he came to me with a badly suppurating cornea; whereas, had he come to me the very first day of his accident, I could have saved the eye that now is lost.

How shall we educate these people? If employers knew that they would have to pay for accidents they would assist us in educating the men applying for employment to know that as soon as such an accident occurs, they must place themselves under competent care. Here, I believe that the first aid to the injured may fail. I understand that in our mines splendid work is being done by the first-aid corps; and I have seen illustrations of excellent work done by it with regard to broken bones, etc. If, however, this rule is adopted with regard to eye injuries, I fear that disaster may often result; because the men who are at work in the mines cannot be taught to be capable of taking care of eye injuries, which should at once be placed under proper and suitable treatment.

For many years I have, with regard to the subject of refraction, tried to impress upon my patients the fact that glasses are not given "to make you see a little bit more; because it is a matter of comparative indifference whether you see a little more, in general, or a little less, but to preserve your eyesight.

Dr. Herbert Ives, Philadelphia: The Illuminating Engineers' Society was founded some years ago by engineers who were interested in the efficient use of light. Many realized that this would include not only efficiency principles, but also sanitary, esthetic and safety considerations. The early days of the society were taken up with ideas of how to direct the light and make the most use of it as a scientific proposition; but later, it became generally recognized that there are two main factors, the light-source and the eye. The Illuminating Engineers' Society has found that it cannot reach its ultimate goal until it calls into service the physicist, the ophthalmologist and the architect. Of those interested in the use of light, the name is legion—whether in the efficiency side of it or in the esthetic side.

Consider how different artificial light sources are from daylight, which the eye is used to from long ages of adaptation. In this room on a clear day we have about fifty times the intensity of illumination that we have by artificial light. In re-

gard to color, there are great differences. The "white" Tungsten lamp, as compared with daylight, appears to be a deep orange yellow. There are also the differences in distribution. By day, we have the light from the side, with long shadows. The most pleasant landscapes are those illuminated from the side by the sun. When we have artificial light, we have a distribution "falling down" from above.

Then there is the question of intrinsic brilliancy. That of the sky never goes above ten candle power to the square inch. The Tungsten light has one thousand candle power to a square inch.

We have appointed a committee on Reciprocal Relations with Other Societies for the purpose of getting in touch with those sciences with which ours is related. We have, in order to do our part, embodied our knowledge in a primer entitled, "Light; its Use and Misuse," which has just been printed. It consists of a series of "Don'ts," illustrated by telling pictures. With each "Don't" there is a paragraph. Here are some of these "don'ts";

"Don't read facing the light.

"Don't use a bright light against a dark background.

"Don't use local lighting by itself.

"Don't waste light by using the wrong reflectors.

"Don't use shallow reflectors.

"Don't save light at the expense of your eyes."

A great many of these sound obvious to all; yet it is in the offices of doctors that I have seen some of the worst examples of these "Don'ts." I recently called a doctor's attention to the fact that he had over his roll-top desk a clear bulb Tungsten lamp, in such a position as to shine directly into his eyes, as he worked. The top of the desk was a sheet of clear glass, which gave a brilliantly reflected image of the light. I took a sheet of writing paper and made a diffusing reflector for the lamp without decreasing in any way the light but entirely obviating the glare of the bare lamp. I also recommended him to have the top of his sheet of glass ground to a dull surface.

Through our committee on Reciprocal Relations, we wish to be in touch with societies interested in the use of light; so that the assistance of our members may be placed at the disposal of societies such as yours whenever there arise questions of legislation or anything connected with the analysis of light.

Dr. Edward Stieren, Pittsburgh, Pa.: There are a few

points that should be accentuated as much as possible, in the matter of industrial injuries. Much has been done in the last two or three years to prevent these accidents. Men are obliged to wear goggles to protect their eyes; shields are put over circular saws, emery wheels, etc. These precautions, however, fail in a measure; because the men very often will not wear glasses, and suffer by their neglect. In other cases, the glasses given to protect their eyes fail in their object. I have known of three instances in which men wore goggles of wire mesh, and were hopelessly injured by impact through the glasses, the goggles caving in like so much paper. I submit a sketch of an improved goggle. Mr. W. H. Cameron, Casualty Expert of the American Foundries Co. of Chicago, has a bushel basket full of these goggles, which had been smashed in and the eye injured when the men were wearing them.

With regard to education, I think that much can be done by enlisting the help of men who have had eye accidents in carrying the gospel of conservation of vision to their fellow workmen. In our hospital, I encourage visiting by the friends of men who have been injured in the mills. After a man has suffered in this way he is urged to do missionary work among the men in the mills.

I feel that trachoma is becoming less common in Pennsylvania. It is considered there an acute contagious disease. Cases can be sent to the Municipal Hospital and treated, and instructions are given the patients, printed in four languages, cautioning them about the care of the disease.

I am convinced that a large proportion of mentally and morally deficient persons have a large percentage of errors of refraction.

In examining juvenile court cases during the past year I found that ninety-three per cent had errors in refraction. Perhaps you have seen Chase's article in the *OPHTHALMIC RECORD*, 1906, on "Eye-Strain and Crime." He found in the Elmira Reformatory that thirty-six and a half per cent had errors of refraction. Writing to different institutions in the United States, he found that thirty-eight per cent of the inmates showed a lowered standard of vision. There is no doubt that many such cases are benefited by the wearing of glasses.

Dr. G. C. Johnston, Pittsburgh: The mass of dynamite caps is small, but the velocity is enormous; and they travel through the eye and into the orbit. I do not know whether it

matters very much whether they are magnetic or not, because I have not seen many eyes saved by the removal of foreign bodies that pass through the ciliary body.

These caps are made of copper because it is a cheap, ductile metal. The caps must be made cheaply and quickly, of uniform density, uniform ductility, and have a uniform cross section.

If these caps were made of iron, you could not get them shipped, because they would explode; iron will generate sparks by friction.

Dr. Wendell Reber, Philadelphia: Copper foreign bodies within the eye almost always mean immediate enucleation.

Dr. C. M. Harris, Johnstown: I believe trachoma is on the increase in our community, because of our many foreigners. There is sometimes no explanation as to where the contagion comes from—probably from money or from contact of these people with one another.

Dr. F. Park Lewis, Buffalo: The remarkable exhibit at Atlantic City by the Cash Register Company, of Dayton, Ohio, illustrating venereal diseases, and in a measure the feeling that a large number of employers have regarding their responsibility in safeguarding the welfare of their employes. The company also asked me for illustrations on the prevention of blindness.

The statement that most of the eyes injured by pieces of shell are irrevocably destroyed is hardly true, especially as they are very small and most of them do not pass the ciliary region.

Dr. C. M. Harris, Johnstown: We have a fresh crop of foreigners in Johnstown every year from Southeastern Europe, and I feel convinced that some must have trachoma in an incipient stage. That accounts for the increase of trachoma there. These foreigners do not stay in Philadelphia, hence, probably, the reported decrease, or non-increase of the disease there.

#### **The Surgical Treatment of Glaucoma (by invitation).**

Dr. John E. Weeks, New York City: The writer's experience has been almost entirely with the Lagrange operation. He has reports of 84 cases of this operation—35 for simple chronic glaucoma, 35 for subacute glaucoma, 7 for acute glaucoma, 2 for absolute glaucoma, and 5 for secondary glaucoma. Of these, 33 private and 4 dispensary cases were observed for periods varying from two weeks to four and a half years. The remainder were dispensary cases that were not kept track of.



The vision before operation ranged from 0 to 20/20. Of the cases of chronic glaucoma, 20 in number, 9 have retained vision; but all except 5 are better than before operation. Of these 5, nuclear cataract is developing in 2; in 3, the fields have narrowed slightly and vision is reduced. Of the subacute cases, 12 in number, vision has remained good in all. Nuclear cataract is developing in 2. The cases of acute glaucoma, 2 in number, were cured. There was one case of absolute glaucoma; in which the pain was relieved. There were 2 cases of secondary glaucoma; tension in them was reduced—so far, permanently. Aside from the occasional tearing of the conjunctiva where the fixation forceps were applied and a failure to remove quite as much sclera as was desired, there were no accidents. If the fixation forceps are firmly applied near the corneal margin and just below the point of puncture tearing of the conjunctiva will occur in only a very few cases. The writer has never operated for glaucoma if the tension could be held at normal and loss of field and vision prevented by the use of miotics. The treatment after operation is of great importance. It is the custom of the writer to begin gentle massage of the operated eye three to five days after the operation; to continue it daily while the patient is in the hospital, and afterward, if desirable; and to have the patient use miotics as long as there is any indication of increase of tension above the normal. The writer is favorably impressed by the results of the operation, and will continue to practice it in all suitable important cases until he is convinced that some other procedure is better.

*DISCUSSION.* Dr. Samuel D. Risley, Philadelphia. In most respects, my experience has been in accord with that of Dr. Weeks. In one respect, however, my own differs—in the use of posterior sclerotomy for the relief of absolute glaucoma with violent pain, in hopelessly blind eyes. I have done it many times, with varied technique in its performance; but I have eventually been compelled to remove every such eye. I do not remember any instance in which I secured more than temporary relief. In my own hands, the best procedure has been to make a meridional section, so as to cut as few as possible of the choroid vessels.

I have been so fortunate in the results from properly performed iridectomies that I have no desire to abandon this operation for procedures that I may not understand so well, and the superiority of which has not been sufficiently demonstrated.

When failure has followed iridectomy, I have usually been able to ascribe the failure to a fault in technique; not always a fault on my part, but usually some fault on the part of the patient himself, when I have been guilty (and I use this word thoughtfully) of trying to do an iridectomy in inflammatory glaucoma without general anesthesia. I think that the surgeon who attempts to do an iridectomy in inflammatory glaucoma without general anesthesia, on a patient to whom it is safe to administer an anesthetic, has not done the best for his patient. In a hard eyeball, neither cocaine nor any other drug is absorbed; and, therefore, you do not secure the value of local anesthesia as in other ocular affections. In order to perform a technically correct iridectomy, the eye must be still, and the patient relaxed. There should be a good light, a steady hand, and well selected instruments. I prefer a keratome, the blade of which is an equilateral triangle. If the anterior chamber is shallow, the difficulties are greatly enhanced; but in the vast majority of instances, the marked increase of tension should be diminished by preceding treatment, such as the administration of sulphate of magnesia for free purgation, and the coincident or following administration of large doses of some very soluble and rapidly absorbed alkaline earth. I prefer chloride of calcium. If the blood-pressure is high, it should be reduced.

Dr. William Campbell Posey, Philadelphia: Some years ago, I was asked by Dr. Casey Wood to write the chapter on Glaucoma in his *System of Ophthalmic Operations*. I thought that I should have a very easy task until I came to collect and describe the numerous operations that had been introduced into ophthalmology by men from nearly every country in the world. As Dr. Risley says, most of these operations are obsolete, and probably will never again come into use. The Lagrange operation, however, is, I think, a most serviceable procedure; and I have still greater confidence in it, now that we have heard Dr. Weeks say that he has done it eighty-three times and with excellent results.

I have also had good results from the Heine, or cyclodialysis operation, particularly in the class of cases in which Dr. Weeks advises posterior sclerotomy or trephining of the sclera. The Heine operation is particularly of value in cases where miotics have failed to hold vision, and where we fear a hemorrhage.

Dr. John E. Weeks, New York City: With regard to Heine's operation, as mentioned by Dr. Posey, I have no doubt

that it would be valuable in cases where hemorrhage would be expected.

### **Streptococcic Infection Involving the Optic Nerve.**

Dr. Fremont W. Frankhauser, Reading: The patient, a physician, suffered with a streptococcic infection of the lids of both eyes, with neuritis of the optic nerves of both eyes. The patient could not see to read for over a year. There was involvement of the nerves of the larynx, causing a spasm of the glottis that came on at night, after being in bed for a few hours. The duration of the disease was over three years, but there was practically complete recovery.

*DISCUSSION.* Dr. Frankhauser, closing: Being the patient myself, I was not in a condition in which I could make any examinations; but I consulted two laryngologists, both of whom examined my nose and throat, and neither of them mentioned any involvement of the sinuses. There was some secretion from the nose, but it was presumed to be lachrymal secretion from the eyes coming through the lachrymal canal into the nose. As for bacteriological examination, it was made by a number of men; and the infection was said to be streptococcic.

As for the optic neuritis, it was nearly a year after the infection before an ophthalmoscopic examination could be made, because of the intense photophobia; and the men then said that there was papillary neuritis of both optic nerves. It was more than a year before I could read anything but large type.

### **Etiology of Phlyctenular Conjunctivitis and Suggested Treatment.**

Dr. Howard F. Pyfer, Morristown: This condition is found most frequently in hospital and dispensary work; although isolated cases of it are sometimes encountered in private practice. The child does not always present an impoverished condition, and the tuberculin test is not conclusive. Errors in diet play an important role in the causation, and a large percentage of the patients are anemic. Lymphatic stasis is invariably found. The treatment consists in fresh air, regulation of the diet, syrupus ferri iodidi, removal of adenoids, and dilatation of the nasal fossa.

*DISCUSSION.* Dr. Luther C. Peter, Philadelphia: In my experience, we can divide all cases of phlyctenular disease into two classes, namely: first, those in whose bodies tuberculosis can be clearly demonstrated; and, second, a small

group composed of those in whom tuberculosis has not been shown by a clinical or laboratory test. There can be no doubt in the minds of any of us that bad surroundings, improper food, adenoids, and the acute exanthemata are large contributing factors in the etiology of this common disease of childhood; but as to the part played by tuberculosis, we are not entirely in accord. The speaker believes with Dr. Pyfer that tuberculosis is a larger etiologic factor than is now generally conceded.

The compilation and study of statistics in large numbers has the disadvantage of inaccuracy and lack of care in the study of each individual case. Exhaustive physical examinations by competent internists are not always made, and a diagnosis of tuberculosis is often allowed to hinge on the positive or negative character of the Von Pirquet or Calmette test with tuberculin. I am a strong advocate of tuberculin in diagnosis and treatment; but in scientific research I do not believe that we have exhausted our investigations until, by repeated subcutaneous injections of tuberculin, we have confirmed or denied the accuracy of the Von Pirquet test, if it is employed. Von Pirquet has given us an instructive resumé of the value of his test in his study of two hundred children whose cases came to autopsy; but for scientific conclusions, I believe that the subcutaneous use of tuberculin should be added to check up inaccurate results.

Furthermore, notwithstanding the value of tuberculin as a diagnostic agent, when used by Von Pirquet's method or subcutaneously, a careful and exhaustive physical examination, made by a skilled internist, should be the *sine qua non* in the study of these cases, in order to arrive at scientific conclusions. Twenty cases studied with this care will give us more dependable data than the statistics of five hundred cases studied indifferently. The improved laboratory tests of the day have caused us to neglect our older methods of diagnosis. The function of the laboratory test should be the confirmation of the clinical diagnosis, rather than the court of final appeal, with insufficient corroborative evidence.

We cannot emphasize too much the importance of the breathing spaces—the removal of the adenoids and offending tonsils, and the widening of the nasal chambers. Most of our cases will recover from the attack with these general measures. Will they remain well? What is the significance of these recurrences? My own feeling has been that tuberculin should

be used in every case that will give a positive reaction to the subcutaneous injection of tuberculin; and also in other intractable cases in which a reaction has not been positive, if clinical evidence seems to point to the presence of tuberculosis. We cannot lose sight of the possibility that the presence of phlyctenules indicates a state of anaphylaxis (therefore, the negative reaction) or an advanced state of tuberculosis.

Dr. Lewis H. Taylor, Wilkesbarre: I have treated many cases of this sort, and have had many good results; but many cases have lingered a long while before being finally cured. I have never used tuberculin; nor do I believe that all these cases are, as Dr. Pyfer intimates, manifestations of tuberculosis.

Dr. G. Edgar Dean, Scranton: There are possibly about three points that were not well brought out in this splendid paper.

First, as Königshofer of Stuttgart points out, there is a possibility that these cases are some phlyctenular, and some herpetic, in character. He said that he could detect the difference by taking a probe and touching the ulcer itself. If herpetic, it is sensitive; but if truly phlyctenular, it is very sensitive.

Dr. R. Wendell Reber, Philadelphia: Every child must establish its own immunity to tuberculosis; but, as some children will do so in the first year of life, and some perhaps not until the twentieth year, the institution of tests with tuberculin in a series of children near any certain age is going to be, in a certain sense, misleading; even though largely true.

Dr. Pyfer, closing: Tuberculosis almost always plays a part in the causation of the disease.

As to giving iodide of iron, I cannot understand why it would not be better to give hydriodic acid. Why should one use a lot of iron, which is not assimilated, and merely colors the stool of the child? It is the iodide that does the good.

### **The Present Status of the Cataract Operation.**

Dr. Samuel D. Risley, Philadelphia: The present view of the ophthalmic surgeon regarding opacity of the crystalline lens and operation for its removal differs in many respects from that formerly entertained. The change has come through a wider recognition of systemic affections and local pathologic status, not only as etiologic factors in the production of cataract, but also as influencing convalescence, prognosis, and the selection of the time, method and technique of operation.



Dr. Lewis H. Taylor, Wilkesbarre. *Mc. Chairman*

Those of us who have been in practice more than twenty-five years remember that at first only the combined operation was done. A few years later, there was a general revival of extraction without iridectomy; and to this many operators adhere, performing the iridectomy only in cases of prolapse or other accident. It is interesting to note that in the past five years the pendulum has swung backward, and I believe that to-day the combined operation is performed far more frequently than any other. Landolt a few years ago declared for the combined operation, abandoning his former position in favor of what was regarded as the safer operation. The safety of the patient and the preservation of eyesight are the vitally important points of any operation; and I gather from the literature of the subject and from discussions in ophthalmological societies, that the combined operation is regarded as the safest operation; and if a preliminary iridectomy be performed it adds still further to the advantage of the patient. The simple extraction with the round, black pupil is the ideal operation, no doubt, for cosmetic effect; but what signifies cosmetic effect, if you run the slightest risk of endangering the eyesight of the patient?

As to the various incisions, the special technique, the use of a speculum or lid-elevator, the irrigation of the anterior chamber or its absence, the kind of knife to use—these are all merely variations of the individual operator. I presume that if twenty present to-day should discuss this paper, we should find the status of the cataract operation presented in twenty different ways.

Ellett has recently advocated the use of the corneal suture in cataract operations, as did, some years ago, Kalt, of Paris, but it does not appeal to me.

One cannot discuss the cataract operation of to-day without mention of the work of Colonel Smith, of India, with his record of twenty-five thousand operations, the vast majority of which were done by extraction of the lens in the capsule.

I believe that for the majority of us who are performing a limited number of such operations, this can hardly be a safe operation; although I believe it may be the ideal operation.

Dr. Howard F. Pyfer, Norristown: I have followed Dr. Risley's teaching, with the result that my cataract extractions

have been thoroughly successful, the patients afterwards having better general health than in the preceding ten to twenty years.

Dr. John J. Sullivan, Scranton: Dr. Risley has asked me to report a case—a miner, fifty-five years of age, with a frontal sinus disease on one side, together with purulent ethmoidal and sphenoidal involvement. An ophthalmologist operated on him for double senile cataract, but he neglected to tell the surgeon that he had sinusitis. Nine days afterward the patient developed an abscess and lost the sight of the right eye.

Dr. C. J. Kistler, Lehighton: An old lady called to see me on account of failing vision. There was noticeable opacity of one lens with floating vitreous opacities. She was a woman of full habit, for which she had been treated by her family physician.

I had Dr. Risley's teaching in mind, took her blood-pressure and found it to be about 230. I regulated her diet and put her on nitroglycerin, with hardly any other treatment. To-day she sees almost perfectly. The vitreous is clear and there is no tendency to lens opacity. I believe that if the condition had been allowed to go on, there would have been a lowered vitality of the eyes with further development of the cataract.

Dr. Wendell Reber, Philadelphia: Landoldt himself was honest enough to renounce the simple operation and do the combined. Six years ago I read a paper on preliminary iridectomy in which I collated the opinions of one hundred American surgeons and found that a great many of them favored preliminary iridectomy.

If I were to be operated on, I should demand this procedure. If anyone near and dear to me were to be operated on for hard cataract, I should consent to nothing else. I believe that it is the safest method.

Dr. Samuel D. Risley, Philadelphia: Whether we shall do a simple extraction or not, or what sort of operation we shall choose, depends upon the presence or absence of uveal disease; because, if you find a pupil which does not dilate widely under a mydriatic, you should not attempt a simple extraction on it.

#### **Hypopyon Ulcer of the Cornea and Its Treatment.**

Dr. Clarence M. Harris, Johnstown: As the diagnosis of this condition is not difficult, more importance is to be attached to its treatment. The salient points in the local treatment are: (1) cauterization, which removes germs and infiltrations that

destroy tissue; (2) a well-chosen paracentesis, which relieves stasis and pressure incident to the inflammatory process and removes the hypopyon, which may exert a destructive effect on the posterior of the cornea or cause synechial and pupillary obstruction; (3) the use of scarlet-red ointment, which may prevent keratocele or staphyloma.

*DISCUSSION.* Dr. George W. Carr, Wilkesbarre: Injuries in the mines cause many ulcers of the cornea, frequently associated with pus in the anterior chamber. My experience has been that miners are more comfortable and their infected corneal wounds heal more quickly when there is absolute rest with the proper surroundings, which they do not get, as a rule, in their own homes. The majority of these people have unsanitary conditions at home and should be treated in hospitals. I find the ointment of iodosyl satisfactory. The subconjunctival injection of 5 per cent diosin has also been effective.

Dr. Nelson S. Weinberger: In addition to the use of diosin we should see that there is good drainage through the lachrymal duct into the nose.

Dr. G. E. Dean, Scranton: There cannot be a more important point than attention to the drainage through the lachrymal duct. In a very large percentage of cases of corneal ulcer that are persistent, there is some trouble with the duct, even if merely that it is not sufficiently large for complete drainage; and I have found much better results when attention was given to this.

Too little attention has also been paid to the old-time Saemisch section in these cases of extensive central ulcer with hypopyon. Hygienic treatment in hospital is also of prime importance.

Dr. J. B. McMurray, Washington, Pa.: The question of prophylaxis should not be forgotten.

There is an obligation, for example, on the specialist to go before general medical societies and caution practitioners about dealing with foreign bodies imbedded in the cornea. I have lately seen four separate cases of badly infected wounds following the clumsy and careless removal of small particles from the eyes.

Dr. John B. Turner, Philadelphia: These ulcers of the cornea are mostly, according to my experience, caused by pneumococcus infection; and in their treatment I invariably use the

actual cautery. Of course there will be a defect of vision afterwards; but there will be one anyway, and you want to save the eyeball.

Dr. G. R. S. Corson, Pottsville: I have had a number of patients come to me with coal injuries received a week or two before, no attention having been paid to them; and on examination, I have found an ulcer of considerable size and depth. These men are not so sensitive as other persons. Whether it is because they work down lower than the sea level or because of the atmosphere they are in that the sensitiveness of the cornea is less, I am not prepared to say.

Dr. Wendell Reber, Philadelphia: The author raises the point of just how calomel does good. My own feeling is that it assists the blood to create antibodies in order to throw off any infection. Tapping, I believe, is good, and better than the Saemisch section. We consider it of great value. Washing the eye with boric acid and formalin every hour is also of service. If the patient will bear iodoform dusted into the eye, it is the best single measure in these cases that can be indulged in. Pure tincture of iodine applied directly to the ulcer, is one of the most valuable remedies. Subconjunctival injections cannot be disregarded. Injections of 1:2000 bichloride are often helpful. One to one thousand oxycyanate of mercury is highly recommended, but the reaction is violent.

No one has said anything about the treatment of the nose in corneal ulcer. Lachrymal obstruction will cause infection; but we should go farther, and treat the cause of the lachrymal obstruction. Then all the cases will get well more rapidly, if careful local and general treatment are conjointly applied.

Dr. Harris, closing: I do not believe in tying an eye up, thus making it hot and retaining the secretions, when it is possible to keep it free, well ventilated and well drained. If there is weakness in the floor of the ulcer and you desire to support it, a well-placed bandage is indicated; but the ordinary bandage is a failure in an hour or two. The movement of the muscles of the head affect its fitting, especially if you depend on the nurses and other attendants to apply the bandage.

I relieve the tension by paracentesis and place a light patch over the eye to keep it shielded. This covering is easily removed, the eye irrigated and there is no complication regarding dressings, etc.

The following officers were elected for the ensuing year: Dr. Chevalier Jackson, of Pittsburgh, Chairman; and Dr. C. M. Harris, Johnstown, Secretary.

The following resolutions were adopted:

RESOLVED, That the Section on Specialties approve of the views contained in the address of the chairman, regarding a more advanced curriculum for students in ophthalmology, and recommend that the postgraduate schools of the state so lengthen their course that their graduates may attain a higher degree of proficiency.

### THE BLIND IN PRUSSIA.

In the period between the census of 1905 and 1910, according to recently published official statistics, the number of the blind in Prussia has been reduced not only relatively but absolutely. For 10,000 inhabitants there were in 1910 only 5.2 blind, whereas in 1905 there were 5.6 and in 1880, 8.2. The male population has always been somewhat more affected than the female. As to the age of the blind, the middle and old age classes show many more blind than the younger classes. Among 10,000 inhabitants there were in 1910 only 0.8 under 5 years (1905: 0.8); under 10 years 1.4 (1.2); from 20 to 30 years 2.7 (2.8); from 50 to 60 years 9.8 (10.8); from 60 to 70 years 18.3 (19.7), and over 70 years 49.7 (55.4). The increase in numbers of the blind in advanced life is associated with the occurrence of other afflictions besides their eye disease. In 1910 of the 20,953 blind, 18.57 per cent were inmates of institutions. Of those who were cared for in institutions the merely blind formed the smallest proportion, namely, 17.95 per cent; the insane blind, on the other hand, amounted to 37.94 per cent; the deaf and dumb and blind to 22.7 per cent, and such blind persons as were deaf and dumb and imbecile formed 40.85 per cent.—J. A. M. A.



## EDITORIAL.

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### THE DECREASE IN INCOME OF SPECIALISTS IN MEDICINE.

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Time was, a score or even a decade of years ago, when to be a specialist in active practice meant an assured and fairly remunerative income approaching that of the ordinary successful business man. Pertinent, although confidential inquiries recently made by the writer, do, not, at this day, reveal this satisfactory state of affairs.

For instance in America there are now no oculists whose professional income reaches the \$50,000 mark and those whose collections are up to \$10,000 per annum are comparatively rare. The majority of so-called successful men in our special profession earn but \$5,000 or \$6,000 a year and 90 per cent of the others do not receive even the emoluments of such skilled artisans as carpenters or bricklayers.

Yet a dozen or more years ago there were above 100 ophthalmologists in America whose income exceeded \$25,000 per annum and there were several who earned \$50,000 or more: and all this decrease has occurred despite a slight increase in the amount of the general fees not, however, commensurate with the lessened purchasing value of the dollar, it being worth about half it was a generation ago!

The general tendency of the public for the last few years has been to over-expenditure for luxuries resulting in financial stringency which has reduced the number of paying patients. Certainly the propaganda for a safe and sane use of fireworks, the rules for the prevention of damage to the eyesight of workmen, the care of employees and the use of safety apparatus and the prophylaxis of infantile ophthalmia and trachoma has had an effect in the reduction of the number of such cases applying for treatment. Even the civic examination of school children, although occasionally resulting in consultation with the specialist, sends more cases to the opticians, whose shops are more numerous as the time goes on and has not thus increased the practice of the ophthalmologists.

The over-production of specialists is a large factor, there being 10 to 1 in proportion to a decade ago; nearly 5,000 in America alone practicing *at* the eye, ear, nose and throat; the prospective number of patients thus being split into fractions.

However, the better general equipment of the general practitioners is also a great factor. They now leave their teachers prepared to do anything, only needing practice; so when they get patients they hold on to them as long as they are allowed. They now send fewer cases to the specialist for treatment; in many cases only wanting consultation, preferring to carry out the treatment and only turning over the most responsible cases, or those in which their treatment has not been productive of good results and some even send refraction cases to the optician instead of to the ophthalmologist. This, with the other factors, the horde of opticians, optometrists, ophthalmometricians, etc., who in many instances do good refraction work at smaller fees, accounts for the lessened remuneration of the formerly well-to-do oculist.

Similar conditions obtain for the other branches of medicine: for instance the general practitioner now attempts tonsillar enucleations, sub-mucous resection and mastoid operations and as with the eye, frequently treats a case until blindness approaches, or as a last resort an enucleation is proposed. The patient's anxiety increases so that he finally goes to the ophthalmic surgeon.

As time goes on these conditions will right themselves; as with fewer inducements to enter into special practice and the number of embryo specialists may become proportionately less. The education of the public will lead them to demand better refraction work than they get from the optician and they may likewise realize the danger of trusting their eyes to half-educated men and the true position of the specialist, as a consultant and special surgeon, will be recognized by the general practitioner.

H. V. W.

## NEWS ITEMS.

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Bldg., State and Madison streets, Chicago, Ill.

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Dr. Lorenzo N. Grosvenor, formerly of Chicago, has located in Huron, South Dakota.

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Prof. Hess of Wurzburg has accepted the chair of ophthalmology at Munich, to succeed the late Prof. Eversbusch.

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Dr. Lewis H. Taylor of Wilkesbarre, Pa., was recently elected president of the Medical Society of the State of Pennsylvania.

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Dr. Chas. P. Small has resigned as physician to the University of Chicago and will devote his entire time to the practice of ophthalmology.

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On October 1st, Dr. William E. Gamble delivered the introductory address at the College of Physicians and Surgeons, Chicago. His subject was, "The Quasi-Public Function of the Doctor."

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At the Illinois State Conference of Charities held in Springfield, October 20th and 21st, Dr. F. Park Lewis of Buffalo, N. Y., spoke on the subject of Causes and Prevention of Defective Vision.

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Dr. Frank Allport of Chicago delivered the oration from the eye, ear, nose and throat section of the Southwestern Medical Association to the General Session held in Hot Springs, Arkansas, recently.

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It is said that nineteen persons at Anderson, Ind., have become blind from the effects of gazing at an electric welding apparatus being used on a trolley wire. The blindness came on several hours after exposure to the electric arc.

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Dr. Wilbur Marple of New York announces that in the future each of his ophthalmoscopes will be personally inspected and furnished with a certificate to that effect. The ophthalmoscopes are manufactured by E. B. Meyrowitz, New York.

Dr. Thomas A. Woodruff, editorial secretary of the OPTHALMIC RECORD, has just recovered from a very serious attack of broncho-pneumonia.

Dr. Flavel B. Tiffany of Kansas City, Mo., and Mrs. Tiffany, formerly Miss Zoe Clark, are on their way around the world on their wedding trip. Dr. Tiffany expects to visit the important ophthalmic hospitals on his route, and especially that of Col. Smith at Amritsar, India.

Prof. Fuchs of Vienna, assisted by Prof. Bayardi of Turin, Italy, recently removed the right eye of Guglielmo Marconi of wireless fame. The eye was so seriously injured in an automobile accident that its removal was imperative on account of a possible sympathetic ophthalmitis.

At the October meeting of the Chicago Ophthalmological Society, the following out of town visitors were present: Dr. J. L. Hiers, Savannah, Ga.; Dr. P. P. Fulkerson, St. Joseph, Mo.; Dr. J. P. Worrell, Terre Haute, Ind.; Dr. F. A. Guthrie, LaSalle, Ill., and Dr. W. A. Hager, South Bend, Ind.

Dr. W. H. Roth of Chicago is another victim of the golf ball loaded with a caustic liquid. He received a serious injury to both eyes recently from the explosion of a golf ball while he was trying to cut it open. The fluid is said to be a strong solution of zinc chloride, but its exact composition being a trade secret is unknown.

Many of the diseases of mankind have been cured through treatment of the eyes, but even the most enthusiastic ophthalmologist has never claimed the ability to cure tabes. It remains for the opticians to investigate and apply this wonderful cure. At a recent meeting of an association of opticians in Chicago, the new method was demonstrated and a patient exhibited, said to represent a cure of locomotor ataxia by means of treatment of the eyes.

The Board of Directors, General Council, and members of "THE CALIFORNIA SOCIETY FOR THE PREVENTION OF BLINDNESS" met together at the Semi-annual Luncheon of the Society on September 17, 1912, at the Hotel Stewart, San

Francisco, to talk over its publicity campaign and the ways and means necessary to further the legislative action in California.

Dr. C. S. G. Nagel, president, in a cordial greeting, strongly urged those present to leave no avenue unopened that could lead to the ends desired.

Dr. Adelaide Brown followed in a strong appeal for the co-operation of the medical societies throughout the state and that active influence of all women's clubs should be obtained so that proper legislative action could be obtained, that California may become the fifth state to pass the laws required.

Dr. Milligan, who has recently come to California to assume the superintendency of the deaf and blind institute, at Berkeley, was warmly welcomed, and he especially advocated the support and influence to be obtained from the publicity and co-operation of the daily press.

Dr. Newell Perry, who knows the requirements necessary, spoke feelingly of the needs of the blind and of the great necessity for establishing financial foundations to carry on any work successfully for the amelioration of the condition of the sightless.

Dean J. Wilmer Gresham, of Grace Pro-Cathedral, promised his personal aid in every way possible to further the cause.

Mr. Adolphus Graupner, a director also of the California Social Hygiene Society, gave many statistics of what has been done and what should be done on the coast and promised the co-operation and influence of the new but already well organized society to assist and strengthen all effort to secure proper legislative and medical endorsement.

The meeting was closed by Mrs. Andrew S. Rowan, giving a general resume of what had been done to date and urging those present the consideration of the pressing needs of the future, that the benefits and blessings for which the Prevention Society stands, may be accomplished and not be an ephemeral hope but an act made into law, by the Legislation of California.

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#### BOOK NOTICE.

The Hunterian Lectures on Colour-Vision and Colour-Blindness, delivered before the Royal College of Surgeons of England on February 1st and 3rd, 1911, by Professor F. W. Edridge-Green, M. D. Durh., F. R. C. S. England, Beit Medical Research Fellow. Price \$1.50 net. Paul B. Hoeber, 69 East 59th street, New York, 1912. .



## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.) C. H. Francis (Pol.)	G. W. Mahoney (Pol.) Geo. F. Suker (P.G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Pol.)	E. J. Brown (E. E. N. T.)	G. W. Mahoney (Pol.) Richard S. Pattillo (P.G.) J. F. Burkholder (E. E. N. T.)	Richard S. Pattillo (P.G.) Oliver Tydings (E. E. N. T.)	G. W. Mahoney (Pol.) E. J. Brown (E. E. N. T.) C. H. Francis (Pol.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
11 A.M.	Brown Pusy, N.W.U. Every day, 10-12 A.M.					
	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	E. J. Hoffmann (E. E. N. T.)	A. G. Wippert (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippert (E. E. N. T.)
1 P.M.		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)		Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) L. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) L. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	E. V. L. Brown (Inf.) W. A. Fisher (E. E. N. T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) N. E. Remmen (Inf.) F. A. Phillips (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) L. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Frank Allport (St. Luke's) Frank Brawley (St. Luke's) Thos. Faith (E. E. N. T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (E. E. N. T.) E. J. Gardner (E. E. N. T.) Paul Guilford (St. Luke's) Casey Wood (St. Luke's) T. A. Woodruff (St. Luke's) L. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) L. B. Loring (P. & S.) E. K. Findlay (P. & S.) Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E. E. N. T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Ills. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P. & S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) Wm. E. Gamble (P. & S.)	H. H. Brown (Ills. Med.)	J. E. Harner (P. & S.) W. Allen Barr (C.C.S.) Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.G.)
4 P.M.	W. F. Coleman (P.G.)	C. W. Hawley (P.G.)	G. F. Suker (P.G.)	C. W. Hawley (P.G.)	W. F. Coleman (P.G.) Brown Pusy (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 419 W. Harrison Street.	County, Cook County Hospital, W. Harrison and Honore Streets.	Pol.: Chicago Polyclinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ills. Med.: Illinois Medical College, 183 Washington Blvd.	P.G.: Post Graduate Medical School of Chicago, 240 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1416 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2481 Dearborn Street.	

# THE OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS  
OF OPHTHALMOLOGY

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## ORIGINAL ARTICLES

### A STUDY IN DEXTROPHORIA.

FRANCIS VALK, M. D., Sc. D.

NEW YORK CITY.

I had the honor of presenting a paper before the American Medical Association in 1907 on "Ocular Rotations in Paresis," in which I endeavored to illustrate the rotation of the eyes when presenting some pathological condition, that is to say, a paresis or paralysis. Now, opposite to that condition, but presenting some similar phenomena, we have the conditions, well known as heterophoria and heterotropia. These two terms in their usual form do not, in my experience, imply that any pathological condition whatever is present, inasmuch as I believe that either of these phenomena is purely congenital and anatomical in structure. This, it seems to me, opens a wide field for study, and this paper on the interesting question of dextrophoria may well repay the reader for a few moments of consideration. I trust that the saying, "ophthalmology is finished, you will find nothing new in it," is not the teaching of the present day, as in my own experience I find many problems in ophthalmology yet to be more fully understood and well worthy of any medical research, outside of the many interesting pathological conditions constantly met with in private and hospital work.

What does Dextrophoria mean? Undoubtedly, as it has been proven, Anophoria and Katophoria indicate that both eyes have a tendency to turn upwards or downwards respectively; in other words, we may have a double upward squint, anophoria, or a double downward squint, katophoria; and it goes without saying that these conditions do exist, that they complicate other forms of heterophoria, and that they may have a certain influence on the final results of our operations.

These two conditions, as described, have been fully recognized by the profession, as we find more or less mention of

them in the recent text books, for example, those of Posey and Spiller, Drs. Schweinitz, Howe, Hansel and Sweet, Suter and others; but, unfortunately, while they accept the terms, they give no personal explanation or experience in the diagnosis, pathology or treatment of these tendencies of the eye to turn upward or downward. Now, from the foregoing, we must acknowledge that these abnormal conditions do exist, that they are found in a certain number of cases, and that they must complicate the examination of the action of the ocular muscles. Hence we may say that these conditions of heterophoria are important factors in all ophthalmological work, and any study that will assist us in the elucidation of these abnormal conditions, or any similar tendencies, is essential and necessary for the advanced oculist.

Such being, then, the accepted condition of double upward or downward squint, which, as Howe and others say, must be due to some muscular anomaly, we may well ask, why may not the same anomalous conditions exist in the lateral moving muscles as well as the vertical muscles, and without any pathological condition whatever of one of Savage's centres as a cause for these movements? In other words, may we not have an anatomical condition of the lateral moving muscles that tends to turn each eye to the right or left? My experience and study have proved to me that these conditions do exist, that they complicate many of our cases of heterophoria and heterotropia, that they will account for many of our failures in operations on the ocular muscles, that they may prove that latent and fixed squint is not always binocular, and that their diagnosis can only be demonstrated by one method.

Wendell Reber has well said, "an estimation of all these conditions will give much valuable information." It is, then, a study of the lateral rotation of the eyes to which I would call your attention and in which we find most prominent a tendency of the eyes to turn to the right. To this tendency I have given the name Dextrophoria and to the less frequent cases, Sinistrophoria, or the tendency of the eyes to turn to the left. We may now return to the question at the first part of this paper. What does Dextrophoria mean? It means simply that both eyes have a tendency to turn to the right side of the midplane of the head, due, in my opinion, to an anatomical cause, shown by an increased or decreased development of the internus or externus as the case may show; in other words, by

a strong externus and a weak internus of the right eye and the opposite condition of the left eye, namely, a strong internus and a weak externus. I am not able to state just what is the essential cause of this condition, as it may be in a want of development, or an excess of development in certain of these muscles, or possibly in an abnormal attachment of the distal tendon of these muscles to the sclera, but I feel satisfied, and our operations seem to prove, that one of these anatomical causes is the essential one, and I cannot accept any suggestion that would advance the innervation theory or that it may produce this condition.

This is the subject I propose to present, though it is evident from the above that this abnormal condition may not be new, yet an explanation of this phenomenon and its influence on the operative results in ophthalmology may be new and of some interest to the profession. Do we not see cases of muscular asthenopia, wearing prisms or having operations, when these procedures signally fail? Now there must be some reason for this and in many cases I believe the condition as outlined above may be the prime cause of the failure. I will illustrate this in a case recently seen in a young man wearing a prism of  $6^{\circ}$  base out over the right eye for esophoria. Had the oculist put the prism over the left eye he would have had a much better result and I would have lost a fee.

Before proceeding further let us note what is the history of this condition or term. I must first refer to my paper on this subject (Dextrophoria, read before the Academy of Ophthalmology and Oto-laryngology at Buffalo, September, 1905). The paper was published in the transactions, but not in reprint. Now many years before this paper was read it was noted that some unknown condition was complicating our muscular work which could not be fully explained in a definite way.

At the Ninth International Congress held in Washington, D. C., 1887, twenty-five years ago, writing on the ocular muscles, Dr. G. L. Stevens presented this case: "A gentleman having no refractive error, when looking at a candle at a distance of twenty feet, has homonymous diplopia of  $4^{\circ}$ . If, on the other hand, he directs the eye to the flame of a candle at a distance of only two feet, he has no longer homonymous but crossed diplopia of  $5^{\circ}$ . Hence then, with no extraneous disturbing influence, we have both slight converging and diverging strabismus." The only explanation of this condition that Stev-



ens offered at that time was possibly hyperphoria, that is to say, a tendency to a vertical tendency, though the examination gave no testimony to that effect. That paper was presented, as I have stated, over twenty-five years ago, and since that time I have watched all the publications on ophthalmology under my notice, for any other explanation. In 1905, when I was making some investigations along these lines, I wrote to Stevens in reference to it and his answer stated that it was probably due to cyclophoria. Noyes, who in his time was one of our most careful investigators, writes in his text book, page 196, combination 5 — "defective abduction for distance and defective adduction at the working point; i. e. insufficiency of the externus for twenty feet and of the internus for the near;" and again, page 202, "or insufficiency at the near point and orthophoria at infinity." In other words, Noyes suggests this paradoxical condition, in which he states we may have one condition of heterophoria at the proximal end of the visual line and the exactly opposite condition at the distal end of the same line. For this condition Noyes advised prisms for distance base out and prisms for near base in. It is to be noted that Noyes presents a condition, or a clinical symptom, and suggests a corrective procedure without an explanation of its etiology, which cannot be pathological and must be anatomical, except, Noyes does state on page 190, writing on the causes of heterophoria. "It will often happen that the pressing agencies mentioned are simply exciting causes of a disorder, whose progenitor is an essential muscular weakness, which long may have been latent but is now made potential."

Furthermore we find in the more recent writings that de Schweinitz states on page 700 under Divergent Paralysis, "The condition manifests itself by homonymous diplopia and convergent strabismus when the eyes are fixed upon a distant point. As the test object approaches the patient and especially on lateral fixation, there is diminution of the convergent strabismus and the diplopia and finally a point may be reached when there is single vision and orthophoria, while within this limit there may be exophoria. Cases of this kind have been described as secondary to an abducent paralysis and also ascribed to spasm of convergence and to paralysis of a supposed divergence centre." Berry considers the above condition to be "spasm of convergence," but Duane insists that it is "paralysis of divergence" and that the lesion is near the two abducent muscles. It seems to the writer that the title of this paper would more clearly explain the



phenomenon as illustrated by de Schweinitz, than the theory of Duane.

Passing now to the research of Stevens in the field of mobility, we find, page 297, "cases of heterophoria are not infrequently of alternating character. It may happen that the condition of esophoria, at one time was proved to be exophoria. It is because the patient has for some reason chosen to employ at one time for the most definite fixation, one eye and at a later time has selected the other eye for this office." May we not say, in other words, esophoria in one eye and exophoria in the other, and if so, what anatomical condition can produce this phenomenon except the ocular muscles as shown in dextrophoria?

Again I find in Stevens work, page 379, "A converging strabismus for distance may become a divergent squint when the object seen is at the distance of reading" and on page 380, in writing on esotropia he states, "In many cases the nasal rotation is considerably increased, on the other hand the temporal rotations are often reduced in about the same proportion." The above quotation seems to myself to offer a simple condition that may be well explained under the head of dextrophoria without the presence of hyperphoria, declination, paresis of divergence, or any pathological condition, but due to a simple anatomical construction of the ocular muscles.

Now before we consider the effect of this complication let us first know how to recognize this condition of dextrophoria and then to elucidate its importance. It is well established that the eyes will rotate a certain degree in all directions, and taking the first position of the look, that is, the visual lines fixed on infinity, we may then move the visual lines from this center point to other positions, on the arc of a circle and the extreme point to which the eye can be moved in this way must indicate the actual muscular power to move the eye in that direction. If then we accept the theory and fact that the normal eye will always move the visual line a certain number of degrees on this arc, and that in another case we may find that the eye will move much farther or much less than this normal number of degrees, then it seems to me very practical that we may say that the muscular condition is strong or weak, as the case may be, or that it has more or less power with the assumption that the neuricity (Savage) or the innervation of these muscles is at its maximum condition. Hence we have a normal condition of ocular rotation represented by the extreme points as measured on the arc

and one in which these points represent a field which we may call the field of rotation. Now in all our text books it has been accepted that Stevens' figures as originally given indicate, for the normal ocular muscles, an inward rotation of fifty-five degrees of arc, and an outward rotation of fifty degrees, with an upward rotation of thirty three degrees and downward fifty degrees. This represents what may be called the normal field of rotation or version and in this study must be constantly in mind, particularly the lateral rotations, inasmuch as they have a distinct importance in the diagnosis of this anomaly of the muscular apparatus of the eye.

**Etiology.** As to the causes of this condition of the eyes in which we have a tendency of the optic axis to turn to the right, or to the left, it seems to the writer, after several years consideration of this anomaly, that it must and can only be due to a weakness of some one or more of the lateral moving muscles of the eyes. I use the term weakness, first, because it has been said that I "fall in error" when I use the term; secondly, because of the statement that the "traditional weakness of certain muscles as causes of the different forms of heterophoria is effectively disposed of," (Stevens, page 297.) Yet the same writer speaks of the power of rotation; and, thirdly, because every case of heterophoria and heterotropia that I have examined for several years, invariably showed a deficiency of rotation. Again, Fuchs, ed. 1899, page 620, in writing on the motility of the eye, says, "Interference with these muscles due to non-development, enfeeblement of the muscle itself (is not this weakness?), to faulty insertion, or to perverted innervation, may produce esophoria." All this must mean a weakness of the ocular muscle to rotate the eyeball in certain directions. You may say that this deficiency is due to a want of muscular development or the faulty insertion of the tendon or possibility to innervation, but each of these conditions may prevail, though which one has not been proved. Yet we do and must have weakness of the power of rotation in every and all cases, and if we accept that condition, which I firmly believe is the essential cause of all strabismus, both fixed and latent, in which we find this manifest weakness in both adductors or both abductors, may we not have the same congenital weakness in an abductor of the one eye and of an adductor in the other eye? This argument as to the etiology seems to the writer very reasonable, and in many cases of heterophoria it has been proved to exist; in fact, it has been found in some cases of

orthophoria when this diagnosis has been made with the rod of Maddox. We may then state that the etiology of dextrophoria rests upon the anatomical condition, probably congenital, of a weakness of the internus of the right eye, or tendency to turn out, and a weakness of the externus of the left eye, or a tendency to turn in, and that from this condition if the right eye predominates at infinity, we have homonymous diplopia, from weakness of the left externus, as the test object is brought nearer, orthophoria, and as it comes to the near point, the weak internus of the right eye cannot hold the binocular fixation and we have exophoria or crossed diplopia.

As a cause of failure and its frequency, I feel that I can positively assert that this condition of heterophoria does exist and that the more these cases are studied, the more will one become convinced of their importance in the field of version, and of their final influence when any treatment or operation is proposed; in fact, I might say unless this examination is fully understood, we may possibly operate on an eye, by a tenotomy or advancement, that will be simply useless for the correction of the existing heterophoria and, furthermore, that this condition may have been the underlying cause that produced the failure in many of our operations on the ocular muscles. Again, we may, and do, find this condition in many children who squint at times, and in whom the squint disappears or is easily corrected by glasses; nor do I think I am over enthusiastic when I state that I believe nearly all cases of squint that are corrected by glasses will be found to have that condition of the field of version which I have designated as dextrophoria. Now, as we may find this condition in all cases of heterophoria, it seems to principally exist in association with esophoria and exophoria in equal numbers, as in my case books I find fifteen cases of each imbalance associated with dextrophoria, five cases showing no special imbalance except dextrophoria, one case with hyperphoria, and three cases of exophoria with sinistrophoria. Hence we have thirty cases of dextrophoria and only three of sinistrophoria. Just why we should have this much larger number with the eyes turning to the right, I cannot say, except as Gould has suggested in the discussion of my first paper, in which he stated "that as the child, who learning to write, for twenty years, always had the eyes tending to the right, may not that cause this dextrophoria condition." But granting all this, let us say that this long continued habit has brought about an in-

creased development of an externus and an internus, yet I cannot accept Gould's theory, as I have found dextrophoria in very young children and, furthermore, if Gould's theory could be correct we would find many more cases of muscular asthenopia with this tendency to turn the eyes to the right, while as a matter of fact, these cases of dextrophoria are infrequent, as I find only about thirty cases in my private records of some two thousand with refraction and muscular histories. Granting all this, then, will not this development of the muscular structure of the ocular muscle influence a badly placed operation and make our procedure a failure?

The importance of the recognition of this condition of a tendency of the eyes to turn to the right or left is well shown in my own examinations of the motility of the eyes. It is to be noted that I have found this condition complicating many cases of heterophoria and also in cases where prisms or an operation have failed to have the desired effect. We may have an esophoria well shown by the tests of prisms and rod and we may follow out the old rule and order our prisms with the bases outward. If we are contending against a case of simple esophoria in which we have a weakness of both externi or a deficiency of outward rotation, then in most cases our prisms will give satisfaction and relief; but suppose our case of esophoria, when examined, shows a tendency for the left eye to turn in, but the right eye tends to turn out, dextrophoria, then of what use or service can a prism be that is placed over the right eye with the base out? In these cases I have simply removed the prism over the right eye with complete relief. The same explanation applies if we attempt an operation on the muscles for esophoria, as a tenotomy of the internus or a shortening of the externus of the right eye would be more than useless and probably fail to relieve the symptoms or to correct the imbalance. Furthermore, as I have suggested in an article on "Ocular Rotations," published in the *Ophthalmoscope* for July, 1911, we may, as shown, "operate on the wrong eye"; this is evidenced by the fact that we see many cases of heterophoria who have had one or more operations on the eyes and without any improvement. There must have been some reason for these resultant conditions, and I am inclined to think they are due to the fact that a dextrophoria was behind the more prominent heterophoric condition, and, if so, that it was very important which eye was operated upon, and in such a case it would imply that we might easily

"operate on the wrong eye." I would illustrate this more fully by the following case: A young man at college consulted me in reference to a decided esophoria. He was unable to study and I advised an operation. I was not allowed to operate, but the boy was placed in the hands of a local oculist, who did a tenotomy of the right internus, while my own examination showed that the right eye could only turn inward twenty degrees less than the left. The operation was a failure, yet I feel confident that if the operator had performed the same operation on the left eye it would have been much more successful. Hence the question, did he "operate on the wrong eye"? as this young man had a well marked dextrophoria. Finally, we may well suspect that many of our cases of strabismus are possibly complicated by this condition or, in other words, strabismus is not always a binocular condition and we may find this dextrophoria in many cases of squint. As far as my observation goes, we do not find it in alternating strabismus, as in these cases we have the weak externus of both eyes, but I have found the tendency to turn to the right in many cases of fixed squint, in which an operation on the left eye only was all that was needed to correct the cosmetic condition. Again, we may ask, why do some of our cases of strabismus, after a free tenotomy of the internus, present a divergence a few months after the operation? I think these cases were probably dextrophoric, and the internus of the right eye should not have been cut. Furthermore, this study will carry us to a possible explanation of the question, why do glasses correct one case of strabismus and fail in another case that seems to present the same inward direction and the same hyperopia? Hence I have found the same dextrophoria condition, and since I have commenced this study and have examined my cases of strabismus corrected by glasses, I have always found that the rotation outward of the right eye was normal, about  $50^{\circ}$  or nearly so. It seems to me that the importance of this diagnosis goes without any argument.

The diagnosis. A study of the condition I have suggested in this paper will show that we must carefully and scientifically examine the rotation of the eye if we would attempt to correct any cases of heterophoria and heterotropia, and for this purpose the old test of vertical diplopia, Maddox rod, cover test, watching the pencil and others will not do if we are to treat these cases properly. To say that we have no deficiency of



outward rotation simply because we watch the cornea as the eye rotates outward seems to me too simple and too crude to be of any practical service. Hence we must have some method of an exact measurement of the rotations of the eyeball as the visual line passes along the arc of a circle. This has been attempted many times and recommended in our text books, but only by the use of the perimeter and the finest type the patient can read. This test is somewhat practical, but unfortunately it always fails to record the complete inward rotation of the eye, due to the prominence of the nose, and we must depend on the statements of the person examined.

Now to return to the early part of this paper where I have mentioned the terms Anaphoria and Katophoria. These conditions can only be recognized by one method, and as dextrophoria and sinistrophoria present the exactly similar conditions, the diagnosis becomes simple and practical. To sum it all up in the words of another, I may state that at the last meeting of the American Academy of Ophthalmology the President of the Society, Dr. Wendell Reber, in the discussion on the subject of squint, said, "that the operator who does not take an account of the rotation of the case is defrauding himself of something he should have. The tropometer of Stevens, rightly used, will give much valuable information." After these words it only remains for me to say that this instrument "rightly used" is the only method by which we can make a diagnosis of these anomalous conditions of the ocular muscles, and that the findings of the field of rotation as shown by this instrument, when compared with the normal field of rotation, as shown in the other parts of this paper, will at once indicate the condition and also indicate our procedure when ordering prisms or when deciding on an operation for heterophoria and heterotropia. An eye that shows an inward rotation of more than fifty-five degrees and an outward rotation of less than forty degrees must show esophoria, and an eye that shows an inward rotation of less than forty-five degrees and an outward rotation of more than fifty-five degrees must show exophoria and if both of these conditions exist in one individual, we must have the anomaly of a tendency of the eyes to turn to the right with the usual phenomena attending that condition.

I do not propose to burden this paper with the detailed reports of the many cases of this interesting complication of heterophoric conditions. These must be observed and worked out

by the examiner. We know that our procedure in many cases of muscular asthenopia result in perfect success, but at the same time we note that now and then our operative procedures in these cases result in complete failure to give the desired relief and even that some cases are made worse; this paper may show the reasons for our failure and the reasons for success. To this end I may add a history or two simply to show the records and methods of examination, and the result to be obtained. For this purpose I would direct your attention to this typical case of dextrophoria with hyperopia.

Mr. L. P., age 20, has been under the care of several oculists without relief, is very nervous, has worn glasses some years, has ear sickness and head pain. The eyes get red on use and cannot read. He cannot read holding his book to left side, and if riding in car with left side to window cannot look out, for in doing so has nausea and head pain, but if the book is held to right side or rides in the cars on that side he has no pain or nausea. V 20/15 each Hm+75 No Ah by retinoscopy Maddox rod shows exophoric 1 and tendency to crossed diplopia when the glass is placed over the right eye. Add 8°, abd. 8°.

Before proceeding further with the study of this case, it seems self evident that this young man has some difficulty or inability to look to the left. Now it is not necessary for me to state which muscles are concerned in this action, that is to say, turning the eyes conjointly from the first position to thirty or forty degrees to the left, but we must have some fault with the external rectus of the left eye, and of the internal rectus of the right eye. It seems hardly possible that this is due to non-development of one of Savage's 4th or 5th (see reports A. M. A. 1911) cranial centres that control the eyes in their conjugate movements, or that we have any loss of innervation in these muscles, or that we have a congenital paresis. I cannot accept either theory; but does it not seem possible that we may have a congenital weakness due to non-development or faulty insertion, in other words, an anatomical condition that causes this anomaly? Now if we proceed with our examination, we find that this young man will rotate the left eye outward only 40° of arc, and the right eye inward only 45°, while the normal rotation is 50° outwardward and 55° inward. The study of this case seems to show a peculiar phenomenon that I attempted to correct by ordering a prism of  $\frac{3}{4}^\circ$  base out over the left eye and base in over the right eye, combined with the spherical to

correct his low hyperopia. One month after, I have this report from his private nurse: "Has had no head pain since you gave him glasses, wears them all the time as they are a constant comfort; nervous condition much improved." This case was simply treated with prisms, *properly placed*, for the evident condition of dextrophoria.

One more case of this character which illustrates the value of this examination and the results of the operative procedure is shown in the following: In June, 1909, Mr. C. R. W. came to my office with a history that he could not read, constant pain in the head and all use of the eyes caused pain in the temples and frontal region. He had been under the care of several oculists in this city and abroad, and at the time I saw him was wearing full correction for his compound hyperopic astigmatism. These glasses gave V = 20/15 in each eye. Combined with this correction he had a prism of 11 $\Delta$ , base out, over each eye, and over this he wore a smoked glass of about No. 4 shade. He stated that during the past twenty years he had been advised and had performed twelve operations on the ocular muscles without benefit; in fact, his ocular condition was worse. On examination, I found this refractive condition: R. E. with +4.50=+1 cyl. ax. 75°=20/20. L. E. with +3=+50 cyl. ax. 70°=20/20. Binocular V. with correction nearly 20/15. With a red glass before one eye he had homonymous diplopia, images fused with a prism of 20 $\Delta$  base out. Maddox rod showed the same degree of esophoria. Now what do we find is the extent of his rotation of the eyes when examined with the tropometer? After several examinations I find this result: R. E. 35° in, 40° out, and L. E. 40° in and 30° out. It is to be noted that here we have a case of very decided deficiency of rotation in all directions, probably traumatic from his previous operations, but showing still esophoria of high degree, complicated with dextrophoria.

Undoubtedly we have a clear case of extreme esophoria, and one in which it would seem reasonable that an operation was fully indicated, but what operation? Shall we do a tenotomy—he has had twelve—or shall we do an advancement? Answering the last question in the affirmative, then we have another question that presents itself. Which eye shall we operate on, the right or the left? These were the propositions that presented themselves to my mind, and also this: If I operate, can I do so on the wrong eye? He is wearing prisms over

both eyes, the esophoria is present by all the well known tests, and if I might decide on a tenotomy, which internus, or if an advancement, which externus? Do not these questions present very interesting problems that must be fully answered before we can attempt any operative procedure on either eye? My decision in this case was that only one operation would be of service to him, and that that operation, a shortening, should be on the externus of the left eye. The operation was performed in January of last year with almost complete disappearance of his homonymous diplopia and decided relief in the use of the eyes.

These two cases are sufficient to illustrate the importance of this anomaly of the muscular apparatus of the eyes and how it complicates our work; but we may for a few moments dwell on the frequency of this condition, as before stated, and I find in my private notes for the past six years, from the records of over two thousand cases of refraction, that this condition is noted in about fifty cases of heterophoria, and also in many cases of heterotropia. Also I find these cases in which the heterophoria was complicated by sinistrophoria, or the tendency to turn the eye to the left. The primary condition of heterophoria, which seems to be complicated by these abnormal lateral rotations, is as follows: I find 6 cases of simple dextrophoria, 3 sinistrophoria, 20 esophoria, 23 exophoria, and 2 hyperphoria; that is to say, that in all these cases the tendency to turn to the right or left was found either as a simple heterophoria condition, or as a complication of other deviating tendencies.

Symptoms: There are few subjective symptoms that will be related by our patients in reference to this condition, as we find it so frequently associated with all the many and varied symptoms of heterophoria; but I have noticed in the history, in some of my cases, that a child may have a so-called "cunning way of turning the head to the left." Others have stated they could not ride on the cars looking to the left without nausea; others, that they could read much more easily and with more comfort when they would hold the book to the right of the median line, in other words, they found more relief by looking to the right in dextrophoria. In some cases I have found homonymous diplopia when a candle was held to the left, in the horizontal plane, and that when it was held to the right, at the same distance from the mid-line, the diplopia was crossed.

Treatment: As to this condition in itself the treatment requires little to be said, and the examination with the trop-

ometer at once reveals the conditions and the indications. If we do have a weakness, or call it an insufficiency, of rotation in an externus and an internus, we have the selection of a prism or an operation, which must be decided according to the experience of the examiner or according to his inclinations. I have had good results with a prism over one eye, base in, and over the other eye, base out; this may seem paradoxical, but I think this is the best procedure in simple dextrophoria and is indicated the same as two prisms, base down, for anophoria, etc. But simple dextrophoria is not frequent, yet it is because it complicates our cases of heterophoria that this paper is written. To the writer it seems to make our corrective procedure very simple and with every promise of success, yet without this diagnosis we might say that this complication may be the underlying cause of many cases of failure in the correction of muscular asthenopia. We know that many of our cases do not get any relief from prisms, many cannot wear them, and, I regret to say, we meet people who have submitted to numerous operations without any benefit or correction of their imbalance. There must be some cause for these failures, and may we not find it in dextrophoria? Our treatment of dextrophoria, we might say, is based on the indications as shown in esophoria and exophoria, but the diagnosis of these last mentioned conditions do not in any way indicate what correction should be applied. I can well illustrate this in a case of esophoria, well shown by all the usual tests but which, when examined by the tropometer, shows a well marked dextrophoria as a complication. Now a prism, base in, a tenotomy, partial or complete, on the internus of the right eye, or a shortening or an advancement on the externus of that eye, would be simply useless; or, in other words, would we not "operate on the wrong eye?" But looking to our indications from the evidence of dextrophoria, is it not clearly indicated that a prism, base out, over the left eye may be of some service, or if an operation is indicated, then a shortening or an advancement of the externus of the left eye, or a partial or complete tenotomy of the internus of the same eye will and must be of service and tend to correct the existing esophoria? I have followed this rule in many of my operative cases and the final results have always been gratifying to myself and my patients.

Conclusion: In 1895, I published my method of shortening the straight ocular muscles in their long axis, using the twin



strabismus hooks and the catgut suture. I am pleased to note that I find in the ocular literature of today twelve different methods of performing the same operative procedure, which conclusively proves it to be of great value and that a distinct advance in ocular surgery has been made along these lines in the treatment of muscular asthenopia. Hence, any indication or examination which may be of assistance in our final decision to operate must be of valued importance, though that operation may be a weakening operation as a tenotomy or a strengthening operation as a shortening, and in all these conditions the value of a diagnosis of dextrophoria complicating the cases of esophoria and exophoria is a "revelation in store" for the examiner, as has been well said by Lauder of Cleveland. It has always indicated to me just where I should place my operative procedure and just what operation I should perform, and I can confidently state that by following out these revelations of the tropometer I have found that an operation, properly placed and performed according to these findings was all the procedure needed for complete relief of the existing condition of muscular asthenopia.

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### REPORT OF CASE OF STEEL PASSING THROUGH EYE BALL INTO THE ORBIT.

EDWARD E. KRIDER, M. D.

OELWEIN, IOWA.

A young man, 27 years of age, while working in the railroad shops, August 9, 1912, was struck in the right eye by a piece of flying steel, which came from the head of a punch that was being used by a fellow workman.

He was immediately sent to my office and on examination I found a small wound two millimeters in length and about four millimeters from the temporal corneal margin. A marked minus tension was present and by the use of the ophthalmoscope I could detect many floating opacities in the vitreous and a large retinal hemorrhage. Vision = 20/70.

After cocainizing the eye, I immediately applied the giant magnet to the point of entrance, and got what the patient described as a pulling sensation in the eye ball. An incision in the sclera about one centimeter in length was then made, between the tendons of the external and inferior recti, as recommended by Arlt—and the tip of the giant magnet was again:

applied, but with the same result as before mentioned, only the patient complained of a greater dragging sensation in the globe. Sideway pulls and jerkings at the foreign body by rapidly turning on and off the current was also resorted to but without effect. The sclera was then closed, the eye filled with bichloride ointment, and the patient put to bed with the usual local treatment and salicylate of soda (after the method of Gifford) was given internally.

The third day the magnet was again applied to the eye, but at this time no sensation of pain, dragging or pulling was complained of by the patient. Vision = 20/200. No pain and very little ciliary injection.

Three X-ray pictures were taken of the injured eye—the first and third pictures were taken with the eye perfectly stationary and the second with the eye in constant rotation. The first and third pictures showed the steel to be apparently embedded in the posterior wall of the globe—while in the second picture no foreign body was visible.

These pictures satisfied me that the foreign body was within the globe. At the end of one week the bandage was dispensed with for colored glasses, and with the exception of a very slight conjunctivitis, the eye was apparently in as good condition as before the injury. Vision was however reduced to 20/200. Enucleation was advised, but as the patient suffered no pain or inconvenience of any kind and had a fair degree of vision in the injured eye, he was very reluctant to give it up.

As the patient wished to have another oculist see the eye at this time, I took him to Chicago, where Dr. Frank Allport was consulted. He recommended immediate enucleation, but did not place much confidence in the X-ray pictures as to whether the foreign body was or was not within the globe, but felt that enucleation was the safest procedure.

I returned home with the patient and removed the eye the following day—August 24. The piece of steel (5mm. long and 2mm. wide) had passed through the posterior wall of the globe, into the orbit and was lodged about 6mm. from and to the nasal side of the nerve head. It was surrounded by a firm exudate and lay close up to the ball.

Vision at time of enucleation = count fingers at 10 feet.

This case is interesting, as it shows that it is not always possible to localize a piece of steel even by carefully executed

X-ray pictures. This is true even when motion pictures are made.

Dr. Frank Allport, in *THE OPHTHALMIC RECORD* of February, 1912, reported a similar case to mine, in which he also had motion pictures taken. The pictures, as in my case, naturally led him to believe that the steel was in the sclera at the posterior portion of the eye ball, but upon the removal of the eye, the foreign body was found closely adherent to the eye ball, but posterior to the sclera. The attachment, however, was so close that the steel moved with the eye ball, as was shown in the X-ray picture.

### THE TECHNIQUE OF ADVANCEMENT.

PROF. DR. A. ELSCHNIG, PRAG.

TRANSLATED BY DR. HARRY S. GRADLE.

CHICAGO.

It is well known that the most necessary requisite to the perfect advancement of an ocular muscle is an exact fixation to the sclera. A method to accomplish this result is still open to discussion, and recently several such operations have been proposed.

I believe that the recent proposal of Denig is entirely out of the question. (1) He advocated carrying the needle and suture through the corneo-scleral margin into the anterior chamber in order to prevent the muscle-fixing suture cutting through the conjunctiva at the limbus. He said, "The advantages of this method in contrast to the fixation of the suture in the sclera are so manifest as to be worthy of great consideration." I am of the opposite position and cannot help wondering that Denig's proposal has not as yet been disputed. Indeed, I believe that the disadvantages of this operation are so great that there is no need to discuss them.

Another article which I wish to discuss maintains that the simple fixation of the advanced muscle by means of a suture through the episclera and conjunctiva near the limbus is not a positive fixation. Neither does the method now almost universally employed of incising the sclera and passing the anchoring suture through the superficial scleral lamellae offer a positive fixation.

Consequently, Ohm (2) advocates the use of a suture through the upper and lower edges of the muscle and fastening these to the vertical Recti, in addition to the usual scleral fixa-

tion suture. As an additional attraction of this method, Ohm emphasizes the fact that no bulging of the conjunctiva or muscle occurs. For the past twenty years I have been using this method with some slight modifications and simplifications and described it accurately in the second edition of Czermak (3).

In addition to the suture fixing the muscle to the corneal margin, I apply a suture through the conjunctiva and episclera to the upper and lower edges respectively of the muscle. These are carried through the superficial scleral lamellae as well as through the fan-shaped insertions of the superior and inferior Recti tendons. If the fixation of these lateral sutures through the sclera is omitted knotting of the central suture is apt to draw the bulbar conjunctiva so tightly in the direction of the advanced muscle that the sutures pull through and their removal is very difficult. Moreover, if the operation be combined with tenotomy of the antagonistic muscle, the effect of the tenotomy will be greatly lessened by reason of the stretching of the conjunctiva.

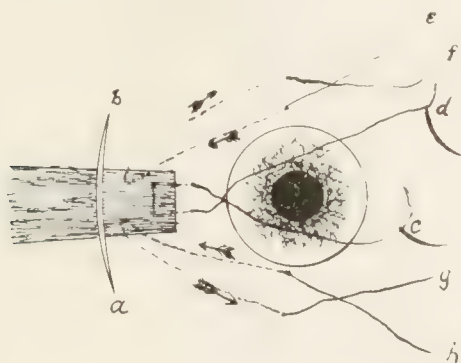
The operation is as follows. Free exposure of the muscle tendon by dissection of the conjunctiva (Fig. a and b)—Grasp the muscle with a toothed forceps. Incise the tendon with scissors, although permitting the edges of the tendon to remain adherent to Tenon's Capsule. Pass a double armed suture through the muscle through the hole in the tendon (c, d). Stretch the muscle by this suture and dissect the tendon absolutely free from the sclera with scissors. At axis 90, pass a suture (No. 1 thread) several millimeters above the limbus, through the conjunctiva and superficial layers of the sclera in the direction of the muscle to be advanced, through the upper edge of the muscle (Tenon's Capsule) somewhat behind and lateral to the central suture, again through and underneath the conjunctiva, through the sclera (including insertion of Superior Rectus) and conjunctiva about 5-6 millimeters above the point of entrance (e-f). A similar suture is applied through the insertion of the inferior Rectus. The corneal lip of the conjunctival wound is raised and the sclera incised 2-3 millimeters away from the limbus and concentric therewith. Both needles of the central fixation suture are then passed through the superficial layers of the sclera starting at the incision and emerging at the limbus. A single surgical knot is tied in this suture while the lateral sutures are tightly knotted, meanwhile carefully observing the position and motility of the bulb. Finish knotting the central suture. Close the conjunctival wound with 0 thread. It is unnecessary to add that the operation is performed under local anaesthesia alone.

With this triple fixation, cutting of the suture through the muscle is almost impossible. Therefore it is not necessary to knot the central fixation suture in the middle of the tendon or muscle as is so frequently done. Removal of a simple suture alone is frequently difficult enough. Moreover, a binocular bandage is necessary for only a short time, at most, 12-24 hours, unless both eyes have been operated upon simultaneously.

This triple fixation of the muscle is manifestly advantage-

ous in that the muscle cannot retract if one or the other of the fixing sutures should slip or cut through, as is so frequently the case in elderly individuals with senile thin conjunctivæ. Also the muscle lies absolutely flat and does not become bunched. I consider this flatness of the muscle to have an especial value in that its adhesion to Tenon's Capsule remains undisturbed. Only in this way does the muscle retain its full integrity and only in this way is the adhesion of the muscle to the bulb restricted to its tendonous end only.

Free dissection of the muscle, especially traction with complicated instruments, destroys the contractile muscle substance.



As is well known, the strength of the muscle and its effect upon the globe depends upon the length of the muscle and upon the length of the unrolling distance ("Abrollungstrecke"), other conditions being equal. The greater this unrolling distance, the greater will be the effect upon the globe by the contraction of the muscle.

In the advancement of any muscle, two factors come into consideration, correction of the position of the cornea, which is approximately one-third of the entire distance advanced, and a slight increase in the motility of the globe in the direction of the advanced muscle, coupled with a slight decrease in motility in the opposite direction. The greater the shortening of the muscle, the greater is the change in position of the cornea, but the greater is the loss in motility of the globe, both of the advanced muscle as well as its antagonist. In regard to the latter phase, the unrolling distance also comes into consideration. The less this distance, i. e., the closer to the equator of the globe the muscle is fixed, the less the effect of contraction of the mus-



cle upon the globe and the greater the accompanying retraction of the globe, which otherwise is negligible.

Thus the motility of the globe after advancement, both eyes being in the central position, is increased by the following three factors: Short distance between the limbus and the insertion of the muscle, linear adherence of the muscle to the globe, and length of the contractile part of the muscle.

Therefore I do not approve of the method recommended by Dimmer (4), which consists in the production of a large flat adhesion of the muscle to the sclera superinduced by a careful curettage, not only of the sclera but also of the posterior aspect of the muscle proper. This adherent part of the muscle loses its contractility and therefore is no longer muscle, as well as diminishing the unrolling distance. Probably the slowly disappearing effect of the advancement as described by Dimmer is due to the gradual loss of contractility of the muscle. Thus the operation advocated by Dimmer is in reality a shortening of the muscle without any increase in the unrolling distance, and this effect can be easier obtained by simple resection of the muscle and refixation to the old tendon.

For the above reasons, I avoid resection of the muscle; only in cases of paralytic squint is it unavoidable. To conform to the modern dictum of a normal symmetrical motility of both eyes, we must attempt to apportion the effect of our operations upon the various muscles of the eye. From my own experience and those of my colleagues, I do not believe that a mathematical regulation can be obtained by exact advancement or graduated tenotomy, and consequently no longer use the instruments advocated by Stroschein (5) and others.

I merely wish to add that I still am of the opinion that I proposed in the II Edition of Czermak's Surgery in the "Nachtrag der Herausgebers" and cannot agree with the more modern view of dispensing with the tenotomy.

- (1) Denig. Verankerung der Naht im Limbus der Hornhaut bei der Vorlagerung. Arch. f. Ophthalm. Bd. 80, H. 1, S. 164.
- (2) Ohm. Ueber die Befestigungs- des Schiellmuskels bei der Vorlagerung. Klin. Monatsbl. f. Augenheil. Bd. XI. S. 714, 1911.
- (3) Czermak. Die augenärztlichen Operationen. 11. Aufl. 1 Bd. S. 539.
- (4) Dimmer. Die Behandlung des Schielens. Wiener. Klin. Wochen. 1912. Nr. 1.
- (5) Stroschein. Eine sehr einfache Methode der Vorlagerung. Klin. Monatsbl. f. Augenheil. 1910. Jan. S. 43.

**TRACHOMA AND ITS SURGICAL TREATMENT.**

By L. WEBSTER FOX, M. D., LL. D.

PHILADELPHIA, PA.

The term trachoma, which signifies a roughness of the conjunctiva, has been in use since the time of Hippocrates (460-377 B. C.) by whom this form of ophthalmia was described, but in Egypt, as Boldt has said, "Trachoma is as old as the Nile, the Simoon and the desert."

From the Papyrus of Ebers, discovered in Thebes in 1872, written a thousand years before the time of Hippocrates, it is evident that even then this and other diseases of the eye were studied and prescribed for.

In Egypt trachoma is ubiquitous and affects more than 90 per cent of the population. It also prevails in Arabia, Armenia and Syria, and the immigrants from these and adjacent countries supply the cases of trachoma that, under existing regulations, upon their arrival here have to be deported from the United States.

Trachoma or granular conjunctivitis, as known in this country, is a contagious specific disease of the palpebral conjunctiva characterized by increased thickening and vascularity and the formation of granular elevations or lymphoid infiltrations which undergo ulceration and subsequent cicatrization.

Diligent search has been made by many competent observers for the micro-organism to which trachoma is due, but Mutttermilch and many others doubt the existence of a specific organism.

The recent studies of Halberstädter and Prowazek seem, however, to have led to the discovery of so-called trachoma bodies which are believed to occupy a position morphologically between bacteria and protozoa.

Trachoma is found most frequently in barracks, asylums, almshouses and places where the inhabitants are careless in the use of towels, handkerchiefs and similar personal articles.

As already stated, it is particularly common among immigrants, especially the Armenians, Syrians, and Russian Jews, but the American negro seems to be comparatively immune to the affection, while the American Indian is extremely susceptible to it.

According to the last report of the Commissioner of Indian Affairs, there are 4,000 Comanche, Kiowa, and Apache Indians

on the Kiowa reservation in Oklahoma, of whom not less than 65 per cent are affected with the awful scourge of trachoma.

The disease is usually chronic, although occasionally acute cases may be observed in which there are marked inflammatory symptoms and profuse purulent secretion, the severity of certain attacks being probably due to a concomitant acute conjunctivitis, or an exacerbation of the symptoms as the result of freshly developing follicles. These cases resemble purulent conjunctivitis, and often the diagnosis must be withheld until the granulations are visible. It is usually bilateral.

In many cases the initial course of the disease is so insidious that the patient is not aware of its presence until it is well developed. The changes in the palpebral conjunctiva are slowly progressive: the membrane becomes thickened, vascular, and roughened by firm hemispherical elevations. This change usually takes place first in the upper lid, later extending to the lower lid, giving rise to the growth of considerable organized new tissue in the deeper parts of the conjunctiva. Externally, edema and vascularity of the lids is noticeable, while the ocular conjunctiva is congested and has an angry appearance; slight photophobia and lacrymation are present, and a "gritty" feeling, due to the roughened condition of the palpebral conjunctiva, is experienced by the patient. If the lids be everted in the early stages of the affection, the surface is found covered with small granular bodies, which look very much like small sago grains, scattered or massed together (*follicular trachoma*), constituting the chief feature of the clinical picture. In the later stages this tissue is partly absorbed and partly converted into dense, tendinous scar tissue, which, by its shrinking, very often produces deformities of the lids. In all cases the eyeball is greatly irritated by the roughened surface, producing a host of resultant troubles by mere friction. In many cases the inflammation is intense, the discharge profuse, the cornea becomes involved early, and only prompt and vigorous treatment can prevent complete blindness. A mixed infection may exist with the trachomatous process. Koch (*Wiener med. Woch.*, 1883) in Egypt found both the gonococcus and what is now classified as the Koch-Weeks bacillus in the discharge from the conjunctiva of trachoma cases. The trachoma granules in some cases are deeply imbedded beneath the thickened opaque conjunctiva, or in the masses of fibrous tissue that have devel-

oped in the lid, so that they can hardly be seen, if at all (*papillary trachoma*). The lid becomes swollen, and drops by reason of its increased weight. The palpebral fissure becomes more narrow than normal. There is always a mucopurulent discharge, considerable in amount in acute cases and scanty in those of long duration.

The troublesome sequelae of trachoma are all natural consequences of the friction of the roughened palpebral conjunctivæ. As a rule, mere removal of the causal condition effects their disappearance. In certain cases, however, this is unfortunately not true. The cicatrices following the absorption of the granulations may so "pucker" the conjunctiva as to draw the edge of the lid inward, producing trichiasis or entropion; in either case the friction is greater than that directly due to the trachoma. The most frequent and troublesome sequel of trachoma is pannus. Corneal ulcers, staphyloma, and symblepharon may also occur.

Various medicaments of an astringent character have long been employed in the treatment of trachoma. Among these are various solutions of the silver preparations,—the nitrate of silver, protargol, argyrol, etc. Copper-sulphate has been used by many in preference to all other applications, and in the milder forms of the disease, happy results have been achieved by this and other astringents, when continued for a sufficient length of time.

It is sometimes possible to hasten the cure by everting the lid and excising the granular formation with scissors or by scraping the tissue down to the basement membrane with scoop and scalpel. This operation was practised by the author as early as 1885. The tendency in the present day is to treat the more chronic and obstinate cases by some surgical method which will bring about a rapid disappearance of the granulations and correct the distorted condition of the eyelids.

The particular object of this paper is to describe the Gratage operation. While the writer was in Paris in 1892, he saw it put to a practical test by Dr. Darier, clinical chief to Dr. Abadie. An opportunity was also afforded of examining a number of patients upon whom the operation had been performed with gratifying results.

Two instruments have been specially devised for the operation,—a forceps and a scarificator. Any procedure which has for its aim the destruction of the granulations must be com-

menced by a complete exposure of the palpebral conjunctivae, including the retrotarsal folds and the cul-de-sac of the upper lid. This is best effected by means of Darier's forceps, which resembles a catch dressing forceps with three pins on the male blade (fig. 1). When the instrument is closed the pins pass through corresponding openings in the opposing or female blade; these points pierce the eyelid to prevent slipping when complete eversion of the lids is made.

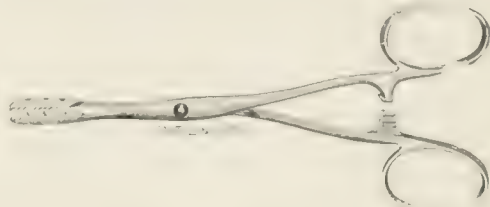


Fig. 1. Darier's Forceps.

The second instrument is a tri-bladed scarificator or scalpel (fig. 2); the outside blades are jointed so that they may be easily turned when being cleaned. They are securely held in



Fig. 2. Darier's Three-bladed Scarificator.

place in a platinum handle and make parallel incisions. The operation is performed in the following manner: The upper eyelid is grasped along its margin by means of Darier's forceps, and the edge being turned upon itself, the lid is everted until the retrotarsal fold is brought into view (fig. 3). A horn spatula should be inserted beneath the lid to protect the cornea. The exposed conjunctiva is first thoroughly scarified with the three-bladed scalpel. The granular tissue is then scrubbed with a toothbrush which has been steeped in a corrosive sublimate (1-100) solution just before being used.

Immediately after scrubbing, the part is washed with a solution of the same strength. Another portion of the lid is now unrolled and the scarifying, scrubbing and washing repeated until the whole of the palpebral conjunctiva has been subjected to the treatment. If the lower lid is involved in the trachomatous process, it should be treated in exactly the same way.

In the soft gelatinous variety of granulations the writer has found that by using ordinary gauze sponges he has been



able to smooth down the elevations and clean off the conjunctiva of both lids, leaving it perfectly smooth so that in a few days all evidences of the trachoma have disappeared, but especial care has been observed to reach the fornix and every other portion of the diseased surface.

In a case which recently came under his care, in which there was implication of the cornea with pannus, the blood vessels of the latter disappeared at the end of a week with but slight reaction. An antiphlogistic lotion is applied over the lids in addition to cold compresses day and night. The eyelid can usually be opened in twenty-four hours without pain or an-

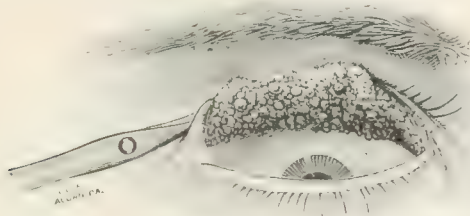


Fig. 3. Trachoma. Retrotarsal fold of conjunctiva exposed, showing granulations.

noyance. It is surprising how very little reaction ensues upon this apparently harsh procedure. (Dr. Coover of Denver uses sandpaper soaked in sublimate solution with much success in similar cases.) The patient is put to bed and the eye pads are kept saturated for two or three days. If the operation has been properly carried out, the results are exceedingly gratifying, and it rarely happens that the operation must be repeated on the same patient, proving that a reinfection seldom takes place. The writer feels convinced that this disease is a curable one and that a modification of the immigration laws should be made in certain cases,—especially where father and mother are free from trachoma and possibly one child of the family only is attacked. This child, under proper treatment, can be cured, and should not be deported as the present law demands.

The French method consists of everting the eyelid after twenty-four hours and again applying the corrosive sublimate (1-500) solution to the conjunctival surface. This procedure is very painful and unnecessary.

Frequently a Burow's operation, cutting through the cartilage on the conjunctival surface from the inner to the outer canthus, performed at the same time, aids the Grattage by expanding the eyelids. In trachoma the swollen condition of

the conjunctiva and cartilage prevents the free movement of the eyeball and by exerting pressure, produces pain and aids in the formation of pannus. Slitting the cartilage by Burow's method relieves this pressure and averts its consequent danger.

The writer has often had reason to repeat the remark of Dr. Couper of Moorfield's Eye Hospital, that "If there ever was a man who deserved a monument for devising an operation in ophthalmic surgery it was Burow." Extirpation of the tarsus, as recommended by Kuhnt, is exceedingly beneficial in cases of chronic trachoma associated with great infiltration and thickening of the tarsus.



Fig. 4. Eyelid Everter.

Success has undoubtedly attended the mechanical pressing out of the granular formations by means of trachoma forceps, and even by the pressure of the thumb-nails. Electrolysis has been employed by a number of ophthalmic surgeons for the removal of the granulations of trachoma. The Radium treatment of this intractable disease has given encouraging results to several practitioners.

From the time the writer witnessed the performance of the Grattage operation by Dr. Darier in Paris, which afforded him the opportunity of becoming conversant with its technique, he has performed the modified operation, as described above, in many hundreds of cases, especially among the Indian children of the Carlisle School, with exceedingly gratifying results.

Dr. Jacovidès, of Alexandria in Egypt, states that he has performed grattage on 15,000 cases of trachoma and has been perfectly satisfied with the results, having had but few relapses. His confrères in Egypt have had similar happy experiences in the employment of this method of treatment.\*

In some cases of trachoma it is no easy matter thoroughly to evert the palpebral conjunctiva of the upper lid. The eyelid everter, an instrument (Fig. 4) devised by the author, will, however, enable the surgeon to expose the retrotarsal fold of the upper cul-de-sac with perfect ease.

\*Medical and Surgical Treatment of Trachoma by Dr. Jacovidès. Published in "La Clinique Ophthalmologique," Sept. 10, 1911. A translation by Dr. L. Webster Fox appeared in "Ophthalmology," January, 1912.

# A PUPILLARY DISK FOR THE CORRECTION OF SPHERIC ABERRATION.

ALBERT B. MASON, M. D.

ATLANTA, GA.

The diameter of the pupil, when accommodation is at rest, has been found by Woinow to vary between 2.44 and 5.82 mm., with an average diameter of 4.14 mm. The diameter of the pupil, with accommodation thoroughly relaxed by a cycloplegic, averages 8 mm.



Rays of light passing through the periphery of the lens are brought to a focus sooner than those which pass through nearer the center; this irregularity being known as SPHERIC ABERRATION, and the distance between the foci, as the focal line of Sturm.

With the eye at rest, the iris, acting as a diaphragm, cuts off rays of light that otherwise would pass through the peripheral parts of the lens, and by causing spheric aberration, give

rise to blurred vision. When the pupil is dilated with a cycloplegic for refraction, these peripheral rays are allowed to pass through the whole lens, which causes a certain amount of confusion and error, since a lens that corrects the error of refraction of the peripheral rays, which are in majority, will not exactly correct the refractive error of the central rays, the error varying in proportion to the error of refraction.

To correct this defect, I have devised the pupillary disk, which Meyrowitz of New York has made. The disk is used in the trial frame, being of the same size as the ordinary trial lens. It is 35 mm. in diameter and 2 mm. thick. The opening in the center is 8 mm., corresponding to the average size of the dilated pupil. The slide has openings 2, 3, 4, 5, and 6 mm. in diameter, so arranged that any one of them can be centered over the opening on the slide.

The method of using the disk is as follows: The size of the pupils with accommodation at rest is noted at the preliminary examination. With the pupils dilated and the patient seated at the trial case, the disk is inserted in the trial frame, with that opening on the slide that corresponds to the size of the pupil noted at the preliminary examination accurately centered in front of the eye. The trial case examination is then made in the usual way.

In 100 consecutive cases refracted without and with the pupillary disk, *better vision* was obtained with the *same correction* in 32; *better vision* was obtained with a *different correction* in 29; a *different correction* gave the *same vision* in 29; and, in only 10 was the *same vision* obtained with the *same correction*.

Of eleven cases of myopia and myopic astigmatism, 10 occurred among the 32 cases in which the same correction gave better vision. The increase in vision was invariably one line of Snellen's Test Type.

The 29 in which vision was increased with a different correction were cases of hyperopia, hyperopic astigmatism, and mixed astigmatism. The increase varied from .12 to .50 diopetre, the latter in errors of 2.50 dioptries and over.

The 29 in which the same vision was obtained with a different correction were cases of hyperopia, hyperopic astigmatism and mixed astigmatism, with the same increase noted above.

Eight of the 10 cases in which no difference was noted ac-

pected plus cylinders, .75 dioptre and under; one was compound myopic astigmatism, and one, mixed astigmatism.

Summary and Conclusions: Ninety cases showed increased vision or stronger correction, one or both, with plus lens and crossed cylinders. Ten cases showed an increase in vision with minus lens, and in one no difference was noted. In every case, the correction accepted with the pupillary disk, either tallied with the retinoscopic findings, or approximated them nearer than the correction accepted without. The 4 mm. opening was used 87 times, the 5 mm., eight times, and the 3 mm., five times. From these results I have come to the following conclusions: 1. Spheric aberration should be corrected. 2. Short eyes—farsighted—have *positive* spheric aberration, which, in nearly every case, if left uncorrected, changes the refractive error. 3. Long eyes—nearsighted—have *negative* spheric aberration, which, if left uncorrected, does not change the refractive error, though the vision is not as acute. 4. The pupil in health approximates 4 mm. in diameter.

I am indebted to Dr. John D. Thomson of this city for suggestions in devising this instrument.

413-14-34 Candler Bldg.

### A CASE OF MACULAR HOLE DUE TO TRAUMATISM.

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NEW HAVEN, CONN.

The infrequency with which one sees cases of macular holes warrants the report of each one observed. The late Dr. Charles J. Kipp stated in 1908 that at that time less than half a dozen cases of this sort had been reported by American writers. He added three more examples to the list. Since that time a few cases have been published by Zentmayer and others.

The following case has recently been under my care:

The patient, C. G., colored, aged 52, a teamster, came to me at seven o'clock in the evening on August 1, 1912. He had been struck upon the left eye with a foul ball while witnessing a base-ball game three hours earlier in the day.

The left upper and lower eyelids were much swollen and there was a skin wound at the outer canthus which was closed with one silk suture. The pupil was irregularly dilated and irresponsive to light. There was some chemosis. Only a small



amount of blood was present in the anterior chamber but the fundus could not be seen clearly and vision was not determined because the patient was too stupelied by alcohol which solicitous friends had administered after the accident.

When next seen, two days later, there was a deposit upon the anterior capsule from blood and exudate in the chamber. Vision in that eye was found to be fingers at six feet. The pupil was smaller from eserine given at the first visit. The fundus could not be seen. On August 22 things had cleared sufficiently to enable me to see the eyegrounds distinctly. The optic nerve appeared normal in all respects. The retinal vessels were likewise normal except for slight evidences of sclerosis. In the region of the macula lutea there was seen a sharply defined bright red area, equal to about onethird of the diameter of the nerve head. The edges of the spot were very slightly wavy and in the bottom of the red area were three small white dots probably sclera. The bright red spot was slightly depressed below the level of the surrounding retina. Just above it there was slight stricture of the retina. The field of vision was normal except for the scotoma corresponding to the hole in the macula. Vision was fingers at 15 feet. The other eye was without defect.

The patient was certain that the sight was equally good in both eyes before the accident. He denies having had syphilis or having used alcohol or tobacco to excess.

The difference in structure between the macula and that of other portions of the retina is well known. The rods are absent, the outer retinal layers are thinner, as is the hyaloid membrane. The very thin central portion of the macula is composed almost entirely of cone cells and the pigmented layer. It is therefore seen that the macula is a weak spot which would be easily affected by edema, traumatism or other unfavorable conditions. Ogilvie (*Trans. Ophthal. Soc. U. K.*, Vol. XX, p. 195) regards the holes as being due to action by countrecoup. Opposed to this view are Treitmeyer (*Zeitschr. für Augenheilk.* Band XVIII, Nov., 1907. Three cases due to traumatism) and Fuch's (*Zeitschr. für Augenheilk.* Band VI, 1901) and Coats (*Royal London Ophthal. Hospital Reports*, 1907).

None of Butler's four cases was due to injury. (*Ophthalmoscope*, p. 2, 1909.) Two of them were bilateral. He says very correctly, regarding the various theories proposed to ex-

plain the production of macular holes, that "the fact seems to be that all these theories are correct. The macula is a weak spot and easily falls prey to concussion, to stretching, to malnutrition and to inflammation."

Mr. George Coats, curator at Moorfield's, in his comprehensive paper upon macular holes, reviews the cases published previously to 1907 and gives the pathology in full. He describes four cases of his own. I add his conclusions upon the subject since his extensive studies of this unusual condition give us the best insight into the etiology and pathology:

"Macular holes are produced by an edema of the retina at the posterior pole. The edema may not be confined to the region of the fovea, but the appearance of a hole will only be produced if there is a defect at least of the inner layers of the retina. Possibly for the completely typical picture, without membranes or shreds, a total defect of all the layers is necessary, and that such a complete defect may arise from edema is proved by Case 2. (Macular hole found upon microscopical examination of an eyeball removed after a severe attack of iridocyclitis.) The edema may result from a contusion, in which case it is the same as the edema which produces Berlin's opacity; or it may arise from toxins in the vitreous, the result of iridocyclitis; or from retinal vascular disease.

"Rupture of the retina at the time of inquiry is not the cause of macular holes. This is proved by (1) those instances which occur without an injury in cases of iridocyclitis, choroido-retinitis, retinal vascular disease, albuminuric retinitis, etc; (2) by those cases in which diffuse opacity of the retina without hole has been observed after a contusion, and in which a hole has subsequently developed; (3) by Case 4 (a case of traumatic rupture of the sclera with loss of lens and iris. Microscopically there was seen a very small red spot at the macula. It would have left a "hole" which would have measured not more than  $1/14$  the diameter of the disk. There was no doubt in Coats' mind that it was a rupture produced at the time of injury by the concentration of fluid waves at the posterior pole, the weakest part of the retina, in the manner described by Ogilvie). Although a rupture had occurred at the macula the measurements and appearances could not be brought into line with the clinical picture of macular holes."

## A CASE OF RETRO-BULBAR NEURITIS OF TOXEMIC ORIGIN.

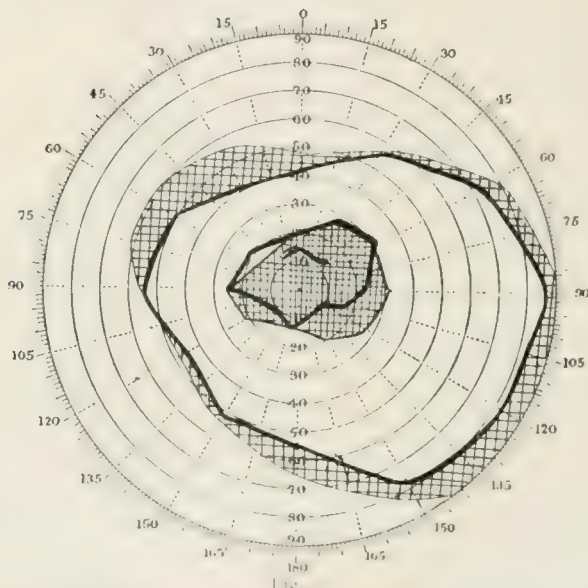
BY FRANK ALLPORT, M. D.

CHICAGO.

*Illustrated.*

W. F. Male. Age 18. This boy has been my patient for various ocular troubles for ten years, which gives me a personal and prolonged knowledge of his usual condition. He has

RIGHT.



always had normal vision in both eyes and a slightly diverging right eye of congenital origin, others of his family also having this appearance.

September 24, 1912, without accident or apparent cause, he noticed dimness and blurring of vision of the right eye. He had no pain or other symptoms. He was in New York and consulted Dr. H. Claiborne. September 30th he felt indisposed generally and had a temperature of 102 degrees and a chill. He arrived in Chicago to consult me October 2nd. There was no temperature, but he looked badly, yellowish and his tongue was thickly coated. Vision was 20/200 and tension was normal. Movement of the eye was slightly painful. His nose, throat and accessory sinuses were pronounced normal by Dr. Frank Brawley. His fundus was normal. He had a central scotoma, as shown in the field of vision chart No. 1. A diagno-

sis of retro-bulbar neuritis from intestinal toxemia was made and he was sent to St. Luke's Hospital for rest, pilocarpine sweats, diet, bowel flushings, etc.

Dr. Thomas Lewis was given charge of his general condition. He diagnosed catarrhal jaundice, and his rapidly developing yellowish appearance certainly confirmed his diagnosis.

The patient rapidly improved generally and visually, and he left the Hospital in about ten days quite well and with a

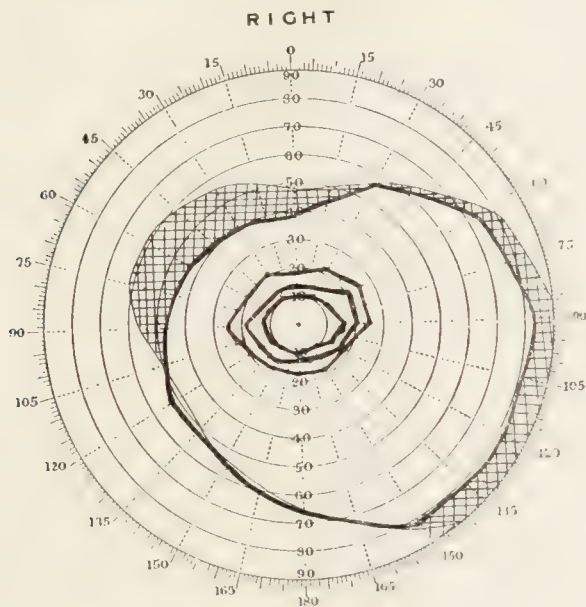


Fig. 11

vision of 20/30. The vision chart, No. 2, for October 14th, shows a good field and no scotoma. October 21st he was dismissed completely well with a vision of 20/20 and a perfect looking optic nerve.

His urinalysis for October 5th disclosed a reddish amber, turbid specimen of acid reaction and with a slight trace of albumen. The specific gravity was 1019 and there was much indican and bile pigment. October 7th, the urine was alkaline, brownish amber, clear, with some albumen and much indican and bile pigment, specific gravity 1020. October 8th, urine clear amber, some albumen, specific gravity 1023, acid, less bile pigment and indican. October 10th, urine clear, amber, no albumen, specific gravity 1019. No pile pigment, no indican.

This case is interesting as clearly showing the etiological possibility of an intestinal toxemia upon an optic nerve and the satisfactory and speedy result of prompt and proper treatment.

### MIGRATORY OPHTHALMIA FOLLOWED BY RECOVERY OF USEFUL VISION.\*

BY W. A. FISHER, M. D.

CHICAGO.

So few cases of sympathetic inflammation recover with practical vision and so many terminate in complete blindness that it makes one shudder to think of treating such cases. We do not often see cases of sympathetic ophthalmia because with proper treatment, injuries of the eyes as we now treat them seldom lead to sympathetic inflammation. Moreover, there are so many reasons why we should remove offending eyes that it is seldom that we see cases of sympathetic ophthalmia. However, we must occasionally treat such cases since the sympathetic inflammation is well developed when they first come under our care. The case I am presenting tonight was one of these cases when I first saw him in 1907, he had a well developed sympathetic inflammation. There was no question regarding diagnosis and the treatment seemed plain enough. One eye was hopelessly blind from an injury two months previous and the fellow eye had a well developed sympathetic ophthalmia. There was nothing to do but remove the injured eye at once, and treat the sympathizing eye. The little fellow was six years old at this time. He is now eleven.

I am reporting this case to the society for three reasons: First because it is unusual to get so good a result; second because I presented him to this society at a symposium on sympathetic inflammation three years ago, at which time his vision was 3/200, and lastly to emphasize the importance of not operating on sympathizing eyes until a long time after the eye has remained perfectly quiet.

I believe that the success of the iridotomy was largely due to the fact that the eye remained practically quiet two years before the operation was performed. The eye did not regain its normal tension during the two years but remained practi-

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\*Read at the meeting of the Chicago Ophthalmological Society October 21, 1912.



cally quiet, the tension being below normal most of the time during the two years and for several months after the iridectomy. The iridectomy that I will speak of and the removal of the opaque lens was performed when the tension was above normal and was done on account of the increased tension.

The history of the case is as follows: May 17, 1907, his right eye was injured by a piece of copper from an exploding cartridge producing an ugly cut through the ciliary body. About four weeks after the injury to the right eye, the left eye became affected. He came to me July 17, 1907, two months after the accident and one month after trouble in the fellow eye with a well developed sympathetic inflammation in the left eye. There was a plastic iritis, the pupil was filled with an exudate and he was unable to open either eye. I saw him at 4 o'clock in the afternoon and removed the eye at 5 p. m. He was put to bed and vigorously treated by eliminatives and large doses of salicylate of soda which did not give him any inconvenience and the left eye was treated locally in the usual manner for such cases. The iris would not respond to atropine but the eye became less irritable soon after removing the right eye.

July 30, 1907, two weeks after enucleation and over two months after the injury an iridectomy was performed on account of the tension. The tension was reduced by the operation but did not entirely subside. Aug. 30, 1907, one month after the iridectomy, it was decided after council with Drs. Faith and Tydings that the lens should be removed on account of the tension and immense amount of exudate in the pupil. Sept. 30, 1907, one month after the removal of the lens, the eye was practically quiet and remained in a semi-quiet condition several months. From May, 1908, until May, 1910, the eye remained quiet except the tension which was perhaps slightly diminished. His vision during this time was about 3/200, the pupil was drawn up and practically closed.

May 20, 1910, three years after the injury and two years after inflammatory symptoms had been present, an iridectomy was performed by Ziegler's method with a very sharp Ziegler's knife. A large pupil was made which has remained open as you see it now. He was kept in bed after the operation, hot applications, eliminatives and large doses of salicylate of soda administered, atropine 1 per cent, and dionin 10 per cent instilled four times a day. His vision soon began to improve

and as the vitreous began to clear up the improvement was rapid.

Aug. 20, 1910, three months after the iridotomy his vision had increased to 20/65 with correction. From this time until Nov. 30, 1910, the improvement in vision was slow but sure and at this time 20/40. Tonight Oct. 23, 1912, the eye is perfectly quiet, the artificial pupil large and clear, the eye has not given him any trouble for more than a year and with glasses his vision is 20/20 and he can read Jaeger No. 1. In conclusion I want to emphasize the importance of the Ziegler's iridotomy. It seems to me to be the best operation for dealing with an occluded pupil after the lens has been removed. It appears to me to be the easiest, best and most satisfactory operation and least liable to infection. Above all I wish to emphasize the importance of waiting a long time after all inflammatory symptoms have subsided before doing any kind of an operation on an eye that has become quiet after sympathetic inflammation.

#### AN INDEX OF THE TWENTY-TWO VOLUMES OF THE RECORD—1891-1913.

With the February, 1913, number the OPTHALMIC RECORD will issue a complete Index, giving a list of all the articles printed in it during the twenty-one years of its existence; also of the names of those who have by their contributions aided the RECORD in its endeavor to publish the fullest and latest data on everything pertaining to Ophthalmology.

Although some of these authors have passed away their works survive, to the benefit and credit of ophthalmic science the world over.

The Index has been most carefully cross-listed, so that the contents of the yearly volumes are easy of access; and the title of each original contribution is accompanied by the name of its author. These cross-references also include sub-titles.

A complete list of a large number of society reports published in the RECORD during the past twenty years is also given, as well as numerous editorials, reviews, abstracts which have appeared since the first number of the RECORD was published at Nashville, Tenn., under the editorial management of Dr. G. C. Savage.

C. A. W.

## REPORTS OF SOCIETIES

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### PROCEEDINGS OF THE PHILADELPHIA POLYCLINIC OPHTHALMIC SOCIETY.

PHILADELPHIA, PA., OCTOBER 10, 1912.

DR. WENDELL REBER IN THE CHAIR.

Dr. William Campbell Posey exhibited a young man with marked proptosis of the right eye, probably in consequence of an orbital tumor. The eye was advanced 20 mm. more than its fellow, and showed all the signs of great stasis in the orbital circulation. An incision into the orbit some months previously, with excision of some of the tissue for diagnostic purposes, gave evidence of the simple inflammatory nature of the orbital cellulitis and it was thought to have proceeded from a periorbititis. Its persistence, however, despite constitutional remedies, now led him to fear a neoplasm. X-ray and rhinological studies would follow. Dr. Posey spoke of the value of the Krönlein procedure for the removal of the growth from the apex of the orbit and said that in the former cases in which he had made use of this method, there had been practically no scarring.

*DISCUSSION.* Dr. Wm. Zentmeyer: "In regard to the diagnosis, there was complete fixity of the globe with a palpable mass above and below. It is six months since we first saw him and it has scarcely increased; the vision also remains the same. I doubt very much if the Krönlein operation would remove the growth. The degree of exophthalmus has no relation to the size of the growth. I think the one point in favor of involvement of the optic nerve is the man's age. There is no more difficult diagnosis in ophthalmology."

Dr. Reber: "If a small growth is situated inside the muscular cone, that of itself will produce a great deal of edema and produce an exophthalmus out of all proportion to the size of the growth. I think this is an inflammatory growth and would say that a Krönlein is justified."

Dr. Posey: "My own view is that there is a growth inside the maxillary bone and my intention was to make a Krönlein if there was. I never get ready for any operation of this kind without having everything ready for a Krönlein operation. In all probability there is a sarcomatous growth which involves the maxillary bone giving rise to marked inflammation of all the surroundings of the bone."

Dr. Luther Peter spoke of a man of 62, who about 4 years ago had a growth removed from one of his tonsils which re-occurred. Shortly after this he began to have, just as we have here, complete palsy of all the eye muscles. The X-ray showed that there was an inflammatory growth in the orbit evidently secondary to the tonsilar condition.

Dr. Posey gave the notes of an associated conjugate paralysis of the movements of both eyes to the left, which he had found in a one-year-old child. The condition had followed a slight fall, but was thought by Dr. Posey and Dr. McCoomb of the Children's Hospital staff, who had seen the case with him, to be independent of this, and a manifestation of infantile palsy. There were no other ocular or general symptoms.

Dr. McCoombs spoke of a similar case they had had at the Children's Hospital about 2 years before. The child was brought to the hospital with fever and diarrhea and the same afternoon the right eye began to twitch and the face was drawn very strongly to the left. Next morning the child had developed acute anterior poliitis. The child was 5 months old. The right side palsy of the seventh nerve remained. Dr. Posey's case seemed to be the same thing as this other case, the ptosis and palsy were on the same side. It was suggested it might be acute third nerve anterior poliitis.

Dr. Peter: "Associated palsy in infants is very rare. In eleven years of neurologic practice I never saw it. There must be some reason in the cortex for the condition. It may be that the fall brought about this cortical state.

Dr. Reber: "Dr. Peter's hypothesis is a possibility in Dr. Posey's case. We are teaching that the associated movements are represented more in the cortex. It seems to me there is a great deal of clinical evidence of the existence of cortical areas for associated movements.

"Dr. Zentmayer: "In a case reported by Snell, first upward movement of one eye was affected; this afterward became palsy of associated movement upward."

"Buphthalmos."

Dr. Wm. Zentmayer: "This specimen was removed from the eye of a colored child in the Spring. Proptosis was extreme. The diameter of the cornea was 18 mm., the anterior chamber very deep. The other eye showed no involvement. He also referred to the case of another little girl who had buphthalmos of both eyes. A great deal of vitreous was lost in the operation done for relief of the disease.

"The condition of uniform distension of the eyeball is one that is seen almost entirely in infants. In this case the child was 3 years of age but the buphthalmos had been noticed only three months before.

"In such eyes the distension is uniform. The cornea becomes large and increases in diameter. The lens is often dislocated. There are some few cases in which the process has been arrested but they usually go blind. Surgical interference is almost always unsatisfactory. Once you open the eye the vitreous comes forward and often escapes. Iridectomy has not been a very satisfactory operation. I might say I have seen five cases and two out of the five have been colored children."

Dr. Posey: "I think there can be no doubt that the etiology is a uterine one. The anterior chamber is so blocked that the eye in its growth is stretched. I think I have seen cases of buphthalmos in advanced child life, that is to say 5 to 10 years of age, but I never saw one in adult life. I believe they all lose their sight. The next case I get I think I shall do a posterior sclerotomy first and then do an iridectomy later. In many of these cases the iris is very hard to get out. Even if you get out the tip (or pupillary edge) it will do no good; you must get out the rest of the iris back in the angle of the anterior chamber. I never remember having had a case of successful iridectomy in buphthalmos. I think, however, that myotics offer a good chance for help."

Dr. Reber: "I have seen 3 cases of buphthalmos and two of them had very large corneae (13 to 14 mm.). In the case of a boy (whom I have not seen for 3 years) there was then vision of 5/60. The family would not consent to operation. Another case was a bilateral one of a child of about 2 years old. In that case there was a slight coloboma of the iris. The third case was in a little girl of about 2 years old and was a unilateral one. In view of all the difficulties of iridectomy in these cases I feel that on the next one that comes under my observation I shall do Elliott's operation of trephining."

Dr. Harbridge asked if it had been observed if this condition presented itself at any particular period or does it generally begin at the time of birth?

Dr. Reber presented three cases illustrating the results following Elliott's trephining operation in two cases of glaucoma. One was in a young man of 27 who four years previously had had a violent blow upon the eye with consequent blindness.



For four years the eye had been sightless but quiet. There was acute inflammatory glaucoma of two weeks' duration, non-yielding to drug treatment. Trephining was done under local anesthesia with complete relief to all the symptoms.

One was in a 65-year-old man with typical acute inflammatory glaucoma of two weeks' standing that had not yielded to the most comprehensive drug treatment. Vision equaled counting fingers at three feet. Trephining was done under local anesthesia and 12 days after operation the vision had risen to 5/20, and the eye was perfectly quiet. In the other case, chronic noninflammatory glaucoma had existed for years. The eye was absolutely blind and had been for years intermittently painful and miotics had lost their effect. Trephining was done under local anesthesia and the result as to pain has been perfect. Dr. Reber feels that the operation of trephining has much to recommend it and is impressed with the complete reduction of tension it effects, also the freedom from gross hemorrhage after the operation, the unaltered or slightly altered pupil and the simplicity of performance.

D. FOREST HARBIDGE, M. D., Secretary.

## COLORADO OPHTHALMOLOGICAL SOCIETY.

MEETING OF OCTOBER 19TH, 1912.

DR. EDWARD JACKSON PRESIDING.

### Traumatic Iridodialysis.

Dr. H. R. Stilwill presented a man aged 35 years whose right eye had been struck with a whip lash nine days previously. The blow had cut through the outer end of the upper lid, and reached the eye 3 mm. to the temporal side of the cornea. There was a large iridodialysis on the temporal side, and there had been extensive hemorrhage in the anterior chamber, which was clearing up. Vision had improved from shadows to fingers at three feet. There was some vitreous haze and also floating opacities. Was the lens affected and what was the prognosis of the case?

**DISCUSSION.** Dr. Black: These contused wounds of the eye are often more significant than punctured wounds. Their liability to low-grade iridocyclitis makes prognosis uncertain.

Dr. Coover's experience was that in time the lens became cataractous.

Dr. Sedwick instanced a clinical case in which needling of cataract had been followed by pretty good vision.

Dr. Walker referred to a patient aged 19 in whom cataract had shown earlier than the present stage of Dr. Stilwill's case. He did not look for lens disturbance in this case, and would give a good prognosis.

Dr. Hilliard would use dionin.

Dr. Aufmwasser had obtained vision of 20/100 after two needlings in a patient who would not stay for complete treatment.

Dr. Jackson had lately seen a boy whose right eye had been struck on September 28th by a No. 4 duck shot from a spring gun. Vision had improved from light perception to 4-5 part, and the eye was clearing up nicely under atropin. The dialysis was above, the shot having hit the eye several millimeters above the limbus.

#### **Cyst of Accessory Lacrimal Gland.**

Dr. H. Aufmwasser presented a woman of 21 years who two months earlier had noticed a swelling in the right upper lid near the external canthus. (For four months she had been aware of a chalazion towards the nasal end of the same lid.) On turning the lid and having the patient look down a transparent cyst came into view, the size of a large pea. The cyst was probably derived from an accessory lacrimal gland.

*DISCUSSION.* Dr. Walker would split the external wall of the cyst and then thoroughly curet the interior to set up an adhesive inflammation.

Dr. Bane favored shelling it out with a pair of curved scissors.

Drs. Black and Jackson thought the cyst of lacrimal origin.

#### **Magnet Extraction Through Scleral Incision.**

(a) Dr. Edward Jackson presented a patient, from the practice of the late Dr. E. W. Stevens, in whom a piece of steel had passed through the iris, and the anterior and posterior capsules of the lens, and had hung suspended in the vitreous a few mm. back of the lens. The foreign body was extracted after 24 hours, but a severe iridocyclitis lasted eight weeks. The only trace of this however was now a rather broad adhesion of the iris at the temporal edge of the pupil. There was a limited opacity deep in the lens, which was otherwise clear. There was a considerable degree of astigmatism. Extraction was done through the sclera.

(b) Dr. Jackson presented the patient in whom he had first made use of scissors, in contact with the magnet and with their points in the vitreous, to extract a piece of steel. (Proceedings Colorado Ophthalmological Society, Oct. 17, 1907.) Extraction was not performed until more than five months after the injury. The foreign body was only obtained after a number of snipping movements of the scissors while in contact with the magnet. Tonight, with correction of compound myopic astigmatism, vision was  $4/4$  part in this eye.

(c) Dr. W. H. Crisp presented a patient from whose right eye a piece of steel had been removed through a scleral incision, nine days after the injury. In this case (as in the two cases reported by Dr. Jackson) a hand magnet was used. The foreign body had penetrated apparently in the region of the suspensory ligament, and the lens was uninjured. The eye had developed a moderate amount of compound myopic astigmatism, on correction of which vision was now (over three months since operation)  $5/4$  part.

*DISCUSSION.* Dr. Black referred to a case in which, after repeated attempts at extraction with a giant magnet, the patient feeling pain with each application, skiagraphy showed the foreign body to be outside the eyeball in the orbit.

Dr. Jackson had had a shot case in which blindness had occurred from the moment of the injury, and after enucleation the shot was found in the optic nerve.

Dr. Neepor spoke of a case in which, although the foreign body was located in the orbital fat and the vision remained normal for some time, yet a year or two later the lens had become cataractous.

Dr. Walker had succeeded in extracting with the magnet a large piece of steel which the skiagraph had shown as above the orbit in the cranium.

Dr. Patterson having raised the question as to whether it was better to extract through the sclera or through the lens.

Dr. Walker remarked that each case should be judged on its merits, it being remembered that if there was already an injury to the lens it was not desirable to make a second opening through the sclera.

#### **Papilloma of Conjunctiva.**

Dr. Melville Black reported a case of papilloma of the conjunctiva, about the size of a pea, occurring just external to the caruncle, in a man of 45 years. The growth was excised

with some surrounding conjunctiva, and the diagnosis confirmed by pathological examination. What was the experience of members with regard to recurrence of such growths?

*DISCUSSION.* Dr. Coover referred to a case already reported, of a large growth involving both the cornea and conjunctiva. He had carefully curetted after removal of the tumor, and believed this was the secret for avoiding recurrence. In another case a second operation had been necessary, apparently because the surgeon who did the first operation had not curetted.

Dr. Jackson. These growths sometimes become epitheliomatous if neglected, or may be really epitheliomatous from the beginning.

#### **Interstitial Keratitis.**

Dr. Patterson reported the case of a woman, 27 years of age, in whom an apparent episcleritis had disappeared under salicylates, to be followed a month later by a bilateral and rapidly progressive interstitial keratitis. The Wassermann test being positive, she was put on mercurial inunctions. The injection and photophobia had gone, but the infiltration had not diminished. Was it advisable to follow the mercurial with a course of "606"?

*DISCUSSION.* Dr. Sedwick mentioned a case in which interstitial keratitis had come on after the administration of "606." But the drug had not been given by one expert in its use.

The general opinion of the members seemed to be that there was no considerable prospect of gain from the use of salvarsan in this condition.

William H. Crisp, Assistant Secretary.

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### **WILLS HOSPITAL OPHTHALMIC SOCIETY.**

MEETING OF OCTOBER 8, 1912.

DR. WILLIAM ZENTMAYER, CHAIRMAN.

#### **Dislocation of the Lens.**

Dr. S. D. Risley presented two patients with partial dislocation of the lens. The first in a child five years of age in whom the only symptom was a vertically dilated, ovoid or egg-shaped pupil, the expansion being downward. The lower part of the iris was fixed, while the upper part still responded to light. While studying the eye with an electric ophthalmoscope, the head was tilted strongly backward when the pupil suddenly

resumed its normal shape and position, but remained slightly dilated. After a week, the slight dilatation remained with an occasional tendency to resume the ovoid form.

The second case was a man aged 40, who had received a blow with the handle of a heavy tool on the nasal aspect of the right supraorbital ridge. The right eye had evidently been struck also through the closed lid. There was pain, deep injection and a dilated pupil. The lens was transparent, but its nasal border could be seen by daylight, the entire body of the lens having been forced toward the temporal side. A crescent could readily be seen between its nasal equator and the rim of the dilated pupil. The vitreous was filled with floating debris. The iris was not tremulous. Under treatment and rest, in ten days the dislocated lens could no longer be demonstrated but the vitreous was too cloudy to permit any study of the fundus and V. was reduced to counting fingers doubtfully.

Dr. Risley suggested that the outward dislocation of the lens and the condition of the vitreous might be due to a detachment of the tissues from the sclera in the ciliary region, at the point where the blow must have been received. Under these conditions there would be a filling up of the supra-choroidal space, the subsequent absorption of which would account for the replacement of the lens. It was not probable that there had been any extensive rupture of the suspensory ligament.

Dr. Posey spoke of the seriousness attending any form of dislocation of the lens. Vision is almost always greatly interfered with and in most cases the future integrity of the eye is endangered. He enumerated some of the sequellae of dislocation of the lens, and dwelt upon the difficulty attending the removal of the lens when once it had broken away from its attachment to the ciliary body.

#### **A Case of Unusual Choroidal Atrophy.**

Dr. Burton Chance presented a case showing two large perfectly circular areas of choroidal atrophy, on a line with the optic disk and embraced within the span of the large temporal vessels. The areas were clear-cut disks with pigmented borders; they were too large to be compared to macular "holes," neither had they the attributes of colobomata. The rest of the fundus was healthy. It is probable that the condition was the result of antinatal disease.

#### **Intraocular Neoplasm.**

Dr. William Campbell Posey exhibited a specimen of in-



traocular tumor which had perforated the globe below and had invaded the tissues of the orbit in a woman 72 years of age. Traumatism was denied, the only history obtainable being one of progressive blindness without pain or inflammatory symptoms until of recent date, when the spontaneous rupture of the globe and the formation of a cystoid cicatrix at the lower and outer corneal limbus occasioned some discomfort and irritation. The extraocular portion of the neoplasm which had been removed from the eye some months before, was of a mushroom shape and was apparently connected with the sclera by a broad round attachment. The mass was hard and smooth and limited by a dense capsule.

Dr. Posey spoke at some length of the usual course of intraocular tumors and of the necessity of early enucleation to preserve life, once the diagnosis is made. He referred to a case he had seen on the last clinic day, of probable intraocular sarcoma, though a fully developed cataract prevented a view of the fundus. He spoke of the aid afforded by transillumination in making the diagnosis.

J. Milton Griscorn, M. D., Secretary.

## THE ROYAL SOCIETY OF MEDICINE.

### SECTION OF OPHTHALMOLOGY.

The first clinical meeting of the section was held on Wednesday, 6th inst., under the presidency of Sir Anderson Critchett, C. V. O.

Mr. Herbert Fisher showed a case of subhyaloid haemorrhage, with drawing. He urged the abandonment of the term "subhyaloid haemorrhage," as the haemorrhage was intra-retinal; he suggested the words "semilunar retinal haemorrhages." The President agreed with the suggestion.

Mr. A. W. Ormond showed a case of Pempfigus of the conjunctiva, followed by essential shrinking. The patient was aet. 24, and his condition as well as his sight were now so bad that he pleaded for something to be done. Mr. Ormond proposed to clear away the conjunctiva as much as possible, and substitute mucous membrane from elsewhere. Mr. Fisher referred to a case of pempfigus of the conjunctiva, which was later under Mr. Lawford's care, in which a vaccine made from the contents of the patient's own vesicles was administered for some time, but without marked benefit. Mr. Lawford confirmed the fact that there was no definite improvement after the vaccine treat-

ment. Mr. Bishop Hamman described a very severe and extensive case, involving larynx, pharynx, mouth, and both eyes, and in which no treatment benefited.

Mr. R. Greeves showed a case of paralysis of the third nerve with periodic spasm of irido-ciliary muscles. He said he could not make out any relationship between the movements of the two eyes. He thought the right pupil was a little unsteady, but it seemed to have nothing to do with the contractions and dilatations of the other eye. Mr. Herbert described a somewhat similar case, and suggested an explanation, namely, that a portion of the nucleus of the third nerve was non-existent and the other portion of it was weak, so that it was able to overcome the innervation of the higher centres only after an interval of rest.

Mr. Herbert Parsons showed a case of Mooren's ulcer, with ulceration of the sclerotic, and Mr. Leslie Paton demonstrated a modification of Herbert's operation for chronic glaucoma, in which his object had been, while retaining the simplicity of Herbert's operation, to procure a more permanent result. Mr. Herbert described his own attempts in the same direction, emphasizing the importance of not reducing the nutrition of the flap too much. The difficulty arose chiefly in subjects who had very shallow anterior chambers.

Mr. E. Nettleship read notes of a case in which a sarcoma of the choroid was seen as a small spot of disease, but its true nature not recognized, about 20 years before the diagnosis of tumor was made, and 25 years before removal of the eye. The case showed the importance of watching over long periods, when possible, the behavior of certain solitary spots or patches of dusky discoloration that were occasionally seen in the choroid during ophthalmoscopic examination, some of them probably being the beginnings of malignant growth, although others were, no doubt, congenital and stationary. Such solitary, non-inflammatory patches might sometimes be the counterparts of the minute sarcomatous growths, of which nine or ten examples had been accidentally discovered after death and published during the last few years.

Mr. Nettleship also read a joint communication by himself and Mr. A. Hugh Thompson on an extensive pedigree of Leber's disease of the optic nerves, which illustrated the occurrence of the disease in females, recovery in some cases in both sexes, descent to all the children of one of the affected women, dia-

betes with blindness of unknown nature in one member, high infantile mortality in the very large family of one affected man, and absence of influence of the optic nerve disease upon prospect of life.

The President paid a tribute to the labors of Mr. Nettleship in the domain of hereditary disease, and referred to the changes of medical opinion on the subject of heredity. Mr. Hugh Thompson supplemented the paper in respect to one patient, who was a heavy smoker, and suggested that in cases of tardy recovery from tobacco amblyopia enquiry should be made as to any connection with Leber's disease.

Mr. A. W. Ormond read a paper on "A Case of Retino-choroiditis Juxta-papillaris." The patient was a man aet. 20 who found, on awaking, that he could not see very well with his right eye. He had had a little pain in the eye a week previously. On examination there was found keratitis punctata, and a patch of acute choroiditis touching the upper margin of the optic disc, and spreading upwards. Oedema of the retina spread over and beyond the patch. Vessels which passed over the inflamed area were partly obscured, and the arteries diminished in size; there was also some haze in the vitreous. Von Pirquet's reaction was positive. The inflammation gradually subsided, and the patient now had full visual acuity, but a large sector of his field of vision, stretching from the blind spot to the extreme periphery was entirely absent, and he had no perception of light in the area affected. The defective area in the field of vision was clearly due to the obliteration of a branch of the central retinal artery by the pressure of the inflammatory swelling. Under the title retino-choroiditis juxta-papillaris Professor Jensen, of Copenhagen, published four similar cases in Graefe's Archives in 1909.

From C. Devereux Marshall, F. R. C. S., 112 Harley Street, W.

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## COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF OCTOBER 17, 1912.

DR. WILLIAM M. SWEET, CHAIRMAN, PRESIDING.

### A New Prism Test for Muscular Imbalance.

Dr. J. Thorington described a truncated prism as "a cone or pyramid whose vertex is cut off parallel to the base by a plane." The truncated prism is accurately ground to 7 centrads each, with a space of 3 mm. of plane surface between the bases. These prisms are made of ruby-red, cobalt, or colorless

glass. The difficulty frequently experienced in the use of the Maddox double prism of colorless glass, to have the patient tell promptly whether the fixing light is closer to the upper or lower image in testing for hyperphoria, has prompted the author to propose and use a truncated prism as just described. With this prism the patient sees three images connected by a band of light, with one eye, namely a central light with one image above and another below at a corresponding distance. The position or location of the light as seen by the fixing eye in its relative position to the streak and three lights is easily defined by the patient, and the diagnosis of the variety of the insufficiency promptly made.

Dr. Holloway stated that in using the Maddox double prism test for near, he often experienced considerable difficulty in having the patient see the three dots. He inquired of Dr. Thorington whether he thought this modification would tend to eliminate this difficulty. Personally, he preferred the Maddox rod and the small black screen with central opening, such as had been designed by Dr. Baer.

Dr. Hansell said that a new test that will rapidly and accurately determine orthophoria and low degree of heterophoria is to be desired and will be welcomed.

The device of Dr. Thorington has the advantage over the Maddox double prism in that it creates a third light, seen through the plane surface of the rhomboid prism, which helps to distinguish between the false and true images. The test light should be, as in most of the tests, small, and not too bright.

Dr. Hansell has used in his own work the Maddox rod to detect small variations, the cobalt-blue glass for defects of a little higher grade, and the red glass for the highest degrees, including diplopia. He prefers the deforming tests rather than those that displace the image, because they are less confusing to the patient, and in the cases of patients who neither observe accurately or express themselves definitely, the simpler the tests and the more easily they are understood the better the results.

Dr. Ziegler thought that any addition to our tests for muscular insufficiency should be welcomed. It seems possible, however, that this three-light test might confuse the patient. He used the 6° double Maddox prism about fifteen years ago, but abandoned it for the old Graefe test, made with his illuminated Greek cross test-object, which is more accurate and less confusing. He had presented a description of that test before

this Section last year. He still uses the Maddox prism, however, to cause monocular diplopia in tests for malingering.

Dr. Carpenter called attention to the original Maddox prism, which was practically useless because the strength of the prisms—three degrees—was insufficient, permitting the images to fuse. The instrument of Dr. Thorington seems very satisfactory, containing as it does prisms of seven degrees, thus overcoming this objection.

Dr. Zentmayer said that he had long ago given up displacement tests for determining muscle imbalance. He uses the Maddox rod both for distant and near tests. As control tests he employs Duane's parallax test (which, however, he finds time-consuming and difficult of comprehension for the average patient), and the following test, which is capable of uncovering the smallest errors. A cobalt glass is placed in front of one eye, the other eye remains uncovered, and fixes a distant light. A card is held in front of the cobalt glass, and after thirty seconds is slowly withdrawn perpendicularly to the line of fixation; as soon as this line is past, if there be heterophoria, two lights will be seen, one of natural color, the other of cobalt.

Dr. Thorington, replying to Dr. Carpenter's question, said that the double prism which he had just shown is composed of prisms of 7 centrads each. He remembered hearing Dr. Carpenter make the remark several years ago, when they were associated at the Pelvelinie, that patients could frequently fuse the images produced by weak prisms held with their bases in the horizontal meridian, and he was therefore guided in having the double prisms made of medium strength.

Replying to Dr. Holloway's question, he said that he used his double prism as a near test for imbalance, but not with the extreme satisfaction as when testing insufficiencies at 6 meters.

#### **Burn of the Eye-ball from the Explosion of a Zodiac Golf-ball.**

Drs. J. T. Carpenter and B. F. Baer, Jr., exhibited a patient, who, on August 4, 1912, received a severe burn of the left eye following an explosion of a Zodiac golf-ball, the core of which consists of a putty-like material possessing strong caustic properties.

The patient was first seen by Dr. Carpenter two hours after the accident, and presented the following condition: The left eye-lids were swollen and reddened, the entire bulbar and palpebral conjunctiva transformed into gray sloughing tissue, the cornea, except the upper fifth, opaque and milky, chemosis so



great that the lids failed to cover the protruding conjunctiva. The vision was reduced to counting fingers. Treatment consisted of atropin, dionin, holocain, ice, and later hot compresses. At the end of two weeks there developed a severe iridocyclitis, with hypopyon and necrosis of the lower corneal quadrant. The patient was admitted to the Bryn Mawr Hospital.

Following the recession of the iridocyclitis a third stage of the process began—gradual failure of nutrition in the anterior ocular segment—the cornea being covered with superficial blebs, the episcleral tissues pale and cicatrized, and the corneal parenchyma so densely opaque that vision was only about 1/69. At this time, six weeks after the injury, subconjunctival salt injections were begun, a large quantity of normal salt solution being injected on every third day. The effect was so remarkable that in all but four injections were required. The eye which had shown no tendency to react to any treatment, promptly responded to the salt injections, and is today quiet, the cornea so clear that vision with a plus 1.75 sphere is 6/6, the iris widely dilated, and there is a complete absence of subjective symptoms.

Drs. Mevay and Frisch, of Atlantic City, have under their care a boy who met with a similar accident in May, and whose eye today is still inflamed, irritable and visually useless. We have heard of three other accidents from the explosion of Zodiac golf-balls, but as yet have been unable to get the details.

#### **Burn of the Eyes Following Explosion of Golf-ball.**

Dr. H. Maxwell Langdon cited the following history: W. B. was admitted to the wards of the Presbyterian Hospital on June 28, 1912, with the history that one hour before, while opening an English Zodiac golf-ball, it suddenly exploded, the contents of the core being thrown in his eyes. The right eye showed decided chemosis of the conjunctiva, and a general roughening of the corneal epithelium. The left eye had lost the epithelium from the lower third of the cornea, the remaining portion was rough, taking fluorescein stain, and the conjunctiva was so chemosed that the lids could not close. The cornea was quite hidden until the conjunctiva was pushed aside with a spatula.

He was placed in bed, and ice compresses, and atropin were used; in twenty-four hours the chemosis was much less, and, on account of the condition of the corneæ and the large masses of subconjunctival exudate, heat was used instead of ice. The

condition gradually improved, and in two weeks he was discharged, with a vision of  $\frac{5}{8}$  and  $\frac{5}{6}$  in O. D. and O. S., respectively. The last ten days he was on dionin, which hastened the absorption of the subconjunctival exudate very decidedly.

He has two small scars near the lower margin of the left cornea, and a small traumatic pterygium to the nasal side of the left cornea.

The core of the English Zodiac golf-ball is a small rubber bag filled with a grayish paste, which is strongly alkaline in reaction.

### Unusual Type of Family Cataract.

After referring to some of the unusual types of congenital cataracts that have been recorded, Dr. T. B. Holloway cited the history of a single woman, aged twenty-eight years, who had consulted him for refraction. Upon examination the following unusual lenticular changes were found:

By oblique illumination there could be seen in the right lens, situated near the anterior capsule, an irregular central opacity, grayish in color, and at certain points presenting a faintly bluish tint. Thickly scattered throughout the anterior layers and extending as far as could be seen through the undilated pupil, were numerous irregularly rounded small dots, presenting a delicate blue tint. With the ophthalmoscope the central opacity and finer dots were much less pronounced. At the posterior pole could be noted a small comma-shaped opacity with the same surrounding dots. These finer opacities appeared to extend to the very periphery of the lens in the posterior layers. Apparently the nucleus of the lens was not involved. The left lens presented similar changes, except that the central anterior opacity assumed a different shape. Aside from the lenticular changes, and a high astigmatic error the eyes were normal.

There were but three children in the family, and subsequently an older brother, aged thirty-one years, and a younger brother, aged twenty-four years, were examined. Both had similar lenticular changes, but less pronounced than in the sister. An examination of the father, aged fifty-four years, and of the mother, aged fifty years, failed to detect any changes similar to those seen in the eyes of the children.

Dr. Holloway stated that these cases conformed to the type

of cataract that has been described by Hess in Graefes-Saemisch, except that Hess described some very small brownish dots interspersed between the larger rounded bluish-gray dots.

T. B. HOLLOWAY, M. D., Clerk.

### COURSE IN OPHTHALMOLOGY.

The first summer Course on Ophthalmology in the University of Colorado at Denver was completed August third. It was the first course given in America laid out upon lines similar to those of the Course on Ophthalmology established three years ago at the University of Oxford. The following students representing nine different medical colleges regularly entered for the Course:

Dr. George F. Libby, Denver, Colo.  
Dr. William H. Crisp, Denver, Colo.  
Dr. Chas. C. Reid, Denver, Colo.  
Dr. Daniel G. Monaghan, Denver, Colo.  
Dr. Hiram H. Stilwell, Denver, Colo.  
Dr. Samuel Z. Shepe, Harrisburg, Pa.  
Dr. C. O. Petty, Beaver Crossing, Neb.  
Dr. H. A. Smith, Delta, Colo.  
Dr. Edwin Lewis, Sedgwick, Colo.  
Dr. Frederick T. Lewis, Chicago, Ill.

Part of the time there were as many as fifteen to twenty in attendance.

An important contribution to the interest and enthusiasm of the undertaking was made by Eastern ophthalmologists who took the journey to Denver to assist in the instruction. There were Theodore B. Schneideman, of Philadelphia, Frank C. Todd, of Minneapolis, Casey A. Wood, of Chicago, and L. Webster Fox, of Philadelphia. Each of these gave two or more hours of instruction, and Drs. Wood and Fox conducted operative clinics at the Denver City and County Hospital.

The visitors to Denver, both teachers and students, expressed surprise at the extent of the clinical work in ophthalmology which the University of Colorado was able to offer. The Course included six or seven hours of class work daily, demonstrations and clinical conferences occupying a larger share of time than lectures.

Subjects important to the ophthalmologist were taken up by ophthalmologists not connected with the faculty of the Uni-

versity, and members of the faculty interested in other lines of practice. Thus: Dr. C. E. Walker demonstrated on the eyes of animals; Dr. E. R. Neepser considered office apparatus; Dr. E. O. Sisson gave two valuable lectures on examination of conjunctival secretions; Dr. D. A. Strickler discussed ophthalmic therapeutics; Dr. Robert Levy, relations of nasal accessory sinuses to optic nerve and orbit; Dr. G. F. Libby, heredity in ocular diseases; Dr. G. H. Stover, localization of foreign body by X-ray; Dr. Oliver Lyons, late gonorrhea as a cause of ocular disease; Dr. W. C. Mitchell, the Wassermann reaction and salvarsan; Dr. G. A. Moleen, paralyses of ocular muscles; Dr. G. A. Neuhaus, optic tracts and centers; Dr. J. A. Markley, skin diseases accompanied by ocular lesions, and Dr. Henry Sewall, blood pressure. Two instructive talks and demonstrations on the sketching of ocular lesions were given by Dr. W. C. Bane, and Dr. J. M. Foster took up visual and color tests for railroad men.

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#### BOOK NOTICE.

Atlas of the Embryology of the Human Eye. By Prof. Ludwig Bach of Marburg, and Privatdocent R. Seefelder, of Leipzig. Second volume. 30 figures in the text and plates, 16 to 34. Published in Leipzig by William Engelmann, 1912. Price M. 36 (about \$8.65.)

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Further Observations on the Glaucoma Question. By Dr. W. Wagner, Odessa, Berlin. Published by S. Karger, Karlstrasse 15, Berlin. Price M. 1.5.

The Nystagnus of Mountain Dwellers. The Clinical Picture and Etiology based upon Five Hundred Personally Observed Cases. By Dr. Johannes Ohm, Ophthalmologist in Bottrop, Westfalen. Nine illustrations in the text. Published by Wilhelm Engelmann, Leipzig, 1912. Price M. 2.40 (58 cents).

## NEWS ITEMS

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Personals and items of interest should be sent to Dr. Frank Brawley, Chicago Savings Bank Building, State and Madison Streets, Chicago, Ill.

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Dr. P. H. Chilton of Comanche, Texas, recently lost his house by fire.

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Dr. L. Webster Fox of Philadelphia recently moved his office to 1636 Spruce Street.

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Dr. and Mrs. W. Likely Simpson of Memphis, Tenn., have returned from a year abroad.

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Dr. Samuel E. Allen of Cincinnati, Ohio, has been made a member of the State Board of Health.

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Dr. Ray Connor of Detroit was recently elected secretary-treasurer of the Detroit Academy of Medicine.

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Dr. Frank Vinsonbaler has been appointed ophthalmologist in the staff of the City Hospital of Little Rock, Ark.

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Dr. T. A. Woodruff of Chicago is convalescent following a serious attack of pneumonia, and has left Chicago to recuperate.

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Dr. E. H. Cary of Dallas, Texas, was elected a vice-president of the Medical Associations of the Southwest at the Hot Springs, Ark., meeting October 8.

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Dr. Lucien Howe was recently made secretary of the Buffalo Eye and Ear Infirmary, and Drs. Roswell Park and John B. Coakley were re-elected trustees.

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Dr. Caleb S. Evans, a life member of the American Academy of Ophthalmology and Oto-Laryngology, died at his home in Union City, Ind., October, 16, aged 70.

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Dr. Carleton H. Carmack of New Orleans died in that city November 11, aged 35. Dr. Carmack was a member of the staff of the Eye, Ear, Nose and Throat Hospital.



Dr. Geo. E. deSchweinitz of Philadelphia recently presented a portrait of Dr. Isaac Hayes to the College of Physicians of that city.

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Dr. R. A. Reeve of Toronto, Canada, recently officially received the German Central Committee for Physicians' Study Travels, on behalf of the Academy of Medicine of Toronto.

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Dr. Charles Ohle of Baltimore recently was awarded damages of \$7,500 against the Maryland Casualty Co. Dr. Ohle, while operating, infected his eyes, resulting in total blindness.

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Dr. Frank C. Todd of Minneapolis has been made president of the Minnesota Academy of Ophthalmology and Otolaryngology, and Dr. Louis A. Nelson of St. Paul is secretary-treasurer.

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The South Baltimore Eye, Ear, Nose and Throat Hospital is to have a new building. The trustees are raising a fund of \$50,000, of which \$10,000 has been subscribed by Mr. William Grecht.

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The Hospital Board of St. Louis, Mo., has appointed the following to serve in the eye department of the City Hospital: Drs. J. E. Jennings, Meyer Wiener, Ernst Saxl, Max Jacobs and A. Collasowitz.

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Dr. Frank Judson Parker of New York, assistant ophthalmic surgeon of the Manhattan Eye, Ear and Throat Hospital and of the Presbyterian Hospital, etc., died in New York City October 2nd, aged 39.

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At a recent meeting of the Ophthalmic Section of the Canadian Medical Association held at Edmonton, Canada, papers were presented by Dr. Good, Winnipeg; Dr. Courtney, Ottawa; Dr. R. A. Reeve, Toronto.

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Dr. Louis Rosenberg of Chicago was charged recently with obtaining money on false pretenses. He is said to have guaranteed to fit the complainant's eyes perfectly and to arrange his admittance into the Masonic order for \$400.

Dr. John J. Kyle, formerly of Indianapolis, Ind., has changed his location to Los Angeles, Cal., Suite 702, Title Insurance building. Dr. Kyle has just received the appointment of professor of Otology, Rhinology and Laryngology in the medical department of the University of Southern California.

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Dr. Henri Dor of Lyons, France, is dead at the age of 78. Dr. Dor, who has been active in ophthalmological work for many years, was formerly professor of ophthalmology at the Faculte de Medicine at Berne. He has lived in Lyons since 1876, and has there published the *Revue generale d'ophthalmologie*.

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A memorial tablet of bronze has been placed in the New York Postgraduate Medical School in honor of D. B. St. John Roosa, who founded the institution and fought its battle for existence, until today it is the largest postgraduate school in the world. The artist who designed the tablet was Henry Merwin Shrady.

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Dr. L. B. Graddy of Nashville, Tenn., who died during the past month, was an ophthalmologist of unusually good judgment, and as an operator he exhibited a skill and elegance rarely equalled. He was the first to discover and report that the most serious symptoms of snow-blindness were due not to reflexes from the dazzled retina, as had been generally assumed, but to a sunburn of the cornea. His trachoma forceps are still used in Europe under the name of "Grady's" forceps. He was always a firm and devoted friend.

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At the Annual Meeting of the Minnesota Academy of Ophthalmology and Oto-Laryngology held at the Town and Country Club between the Twin Cities, the following officers were elected:

Dr. Frank C. Todd, President; Dr. John H. James, Mankato, 1st Vice-President; Dr. Elwyn R. Bray, St. Paul, 2nd Vice-President; Dr. Louis Allen Nelson, St. Paul, Secretary and Treasurer. Council: Dr. Frank E. Burch, St. Paul; Dr. E. H. Parker, Minneapolis; Dr. Chas. N. Spratt, Minneapolis.

Sharp criticism of railway hospitals for employees conducted by railroad companies that compel employees to maintain them, was made by Dr. Frank Allport of Chicago, at the afternoon session of the ninth annual meeting of the American Association of Railway Surgeons in the Hotel La Salle. These men are compelled to accept membership in these hospitals of beneficiary associations, he asserted. The management is conducted practically by officials of the road, who, when placed on the defensive, seek refuge in the claim that they are responsible for any deficit. However, the membership fees are so arranged that there can be no deficit. The railway surgeon suffers through these associations. He suggested that a railroad medical fee bill be established by medical associations; that surgeons receive reasonable compensation from railroads, and that the profession discourage railway insurance associations.—*Illinois State Journal*.

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The Ophthalmological Society of the United Kingdom, as we knew it, is no more. The old society (dear to the hearts of so many of us) was interred decently at a special general meeting, held in London, on October 17 last. On that occasion the Council's recommendations, very different from those proposed but a few short months ago, were carried. Briefly, it was proposed that an annual congress be substituted for the monthly meetings; that the yearly subscription be reduced; and, finally, that negotiations be entered into in respect of the disposal of the library and effects. The first point was approved by the meeting, but the others were referred to a committee for further consideration and report. We can only express the fervent hope that the career of the society under its new conditions of existence will be as distinguished as those under the old regime. But there will be a difference.—*Ophthalmoscope*, November, 1912.

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#### NOTICE.

A prominent general hospital in Chicago, having a large eye, ear, nose and throat service desires the services of a physician to act as interne in charge of this special service. Address Ophthalmic Record.

## CHICAGO EYE CLINICS.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A.M.	Richard S. Patillo (P.-G.) J. F. Burkholder (E. E. N. T.) G. W. Mahoney (P. G.)	*Geo. F. Suker (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)	G. W. Mahoney (Poli.) Richard S. Patillo (P.-G.) J. F. Burkholder (E. E. N. T.)	Richard S. Patillo (P.-G.) Oliver Tydings (E. E. N. T.) C. H. Francis (Poli.)	E. J. Brown (E. E. N. T.) S. M. Hager (Poli.)
10 A.M.	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	E. J. Brown (E. E. N. T.)	L. J. Hughes (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)
	Brown Pussey, N.W.U. Every day, 10-12 A.M.					
11 A.M.	H. W. Woodruff (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)	J. R. Hoffmann (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)	H. W. Woodruff (E. E. N. T.)	A. G. Wippenn (E. E. N. T.)
1 P.M.	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)	Willis O. Nance (C.C.S.)
2 P.M.	E. V. L. Brown (Inf.) E. J. Gardner (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) D. A. Payne (Illa. Med.) N. E. Remmen (Inf.) Wm. E. Gamble (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) Thos. Faith (E.E.N.T.) E. K. Findlay (Inf.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) W. A. Fisher (E.E.N.T.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Thos. Faith (E.E.N.T.) Wm. E. Gamble (Inf.) H. B. Williams (Inf.) J. B. Loring (P.&S.) E. K. Findlay (P.&S.) Oscar Dodd (Inf.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) *Frank Allport (St. Luke's) *Frank Brawley (St. Luke's) Thos. Faith (E.E.N.T.) Wm. E. Gamble (Inf.) E. J. Gardner (E.E.N.T.) J. B. Loring (P.&S.) *Paul Guilford (St. Luke's) *Casey Wood (St. Luke's) *T. A. Woodruff (St. Luke's) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) H. B. Williams (Inf.) Francis Lane (Rush) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)	E. V. L. Brown (Inf.) M. H. Lebensohn (Inf.) Willis O. Nance (Inf.) D. C. Orcutt (Inf.) N. E. Remmen (Inf.) Emily Selby (Inf.) Wm. H. Wilder (Rush) H. W. Woodruff (Inf.) N. A. Young (Inf.) J. B. Loring (P.&S.) E. K. Findlay (P.&S.) *Oscar Dodd (Inf.) Thos. Faith (E. E. N. T.) M. H. Worthington (Inf.)	*Chas. H. Beard (Inf.) W. Allen Barr (Inf.) E. K. Findlay (Inf.) W. A. Fisher (E.E.N.T.) Wm. E. Gamble (Inf.) J. B. Loring (Inf.) D. A. Payne (Illa. Med.) F. A. Phillips (Inf.) Wm. H. Wilder (Inf.) M. H. Lebensohn (P.&S.) S. L. McCreight (C.C.S.)
3 P.M.	W. Allen Barr (C.C.S.) *Wm. E. Gamble (P.&S.)	H. H. Brown (Illa. Med.)	*J. F. Harner (P.&S.) W. Allen Barr (C.C.S.) *Wm. E. Gamble (P. & S.)		W. Allen Barr (C.C.S.)	Geo. F. Suker (P.-G.)
4 P.M.	W. F. Coleman (P.-G.)	C. W. Hawley (P.-G.)	G. F. Suker (P.-G.)	C. W. Hawley (P.-G.)	W. F. Coleman (P.-G.) Brown Pussey (County)	

\*Special operative eye clinics.

## ABBREVIATIONS:

C. C. S.: Chicago Clinical School, 819 W. Harrison Street.	County: Cook County Hospital, W. Harrison and Honor Streets.	Poli.: Chicago Policlinic and Hospi- tal, 174 E. Chicago Avenue.	Rush: Rush Medical College, W. Harrison and Wood Streets.
E. E. N. T.: Chicago Eye, Ear, Nose and Throat College, Washington Franklin Streets. Clinics all day.	Ill. Med.: Illinois Medical College, 182 W. Washington Blvd.	P.-G.: Post-Graduate Medical School of Chicago, 2400 Dearborn Street.	St. Luke's: St. Luke's Hospital, 1410 Indiana Avenue.
	Inf.: Illinois Charitable Eye and Ear Infirmary, Peoria and Adams Streets.	N. W. U.: Northwestern University, 2431 Dearborn Street.	

**GENERAL INDEX**  
**TO**  
**THE OPHTHALMIC RECORD**  
**VOLUMES I-XXI**





# GENERAL INDEX

## OF THE

# OPHTHALMIC RECORD

## VOLUMES I—XXI

(1891—1912)

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